

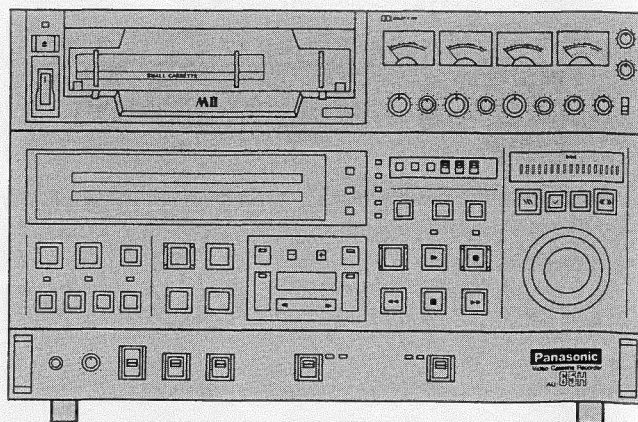
Panasonic

Operating Instructions

AU-65H/66H^{BE}

Video Cassette Recorder

MII



The above illustration shows the AU-65H as seen from the front.

Precautions for Use

- Since this VTR is designed for use with metal tapes only, make sure that only the designated tapes are used. Ordinary VHS tapes cannot be used.
- Removal of the covers on electrical appliances for maintenance purposes may lead to electric shocks. The safety standard must be strictly adhered to and safety measures employed.

Carry out the safety measures listed below.

1. Do not install or remove circuit boards and do not handle leads while the power is still on.
2. Touching heavy-load parts or overheated area may result in burns.
3. Bear in mind that a high voltage may be supplied to the semiconductor cases.
4. There is still a chance of electric shock even after the power has been switched off. In this respect, pay particular attention to the capacitors.

■ THIS APPARATUS MUST BE EARTHED.

To ensure safe operation the three-pin lead supplied (not for U.K. model) must be connected only into a standard three-pin power point which is effectively earthed through the normal household wiring.

Extension cords used with the equipment must be three-pin and be correctly wired to provide connection to earth. Wrongly wired extension cords are a major cause of fatalities.

The fact that the equipment operates satisfactorily does not imply that the power point is earthed and that the installation is completely safe. For your safety, if in any doubt about the effective earthing of the power point, consult a qualified electrician.

■ DO NOT REMOVE PANEL COVER BY UNSCREWING.

To reduce the risk of the electric shock, do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.

CAUTION:

TO REDUCE THE RISK OF THE FIRE OR SHOCK HAZARD AND ANNOYING INTERFERENCE, USE THE RECOMMENDED ACCESSORIES ONLY.

WARNING: TO REDUCE THE RISK OF THE FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE.

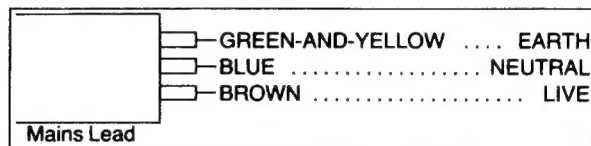
■ is the safety information.

WARNING: Unauthorized recording of copyrighted television programmes, films, video tapes and other materials may infringe on the rights of copyright owners and be contrary to copyright laws.

■ AC POWER CORD CONNECTION (For U.K. only)

WARNING: This apparatus must be earthed.

IMPORTANT: The wires in the mains lead for this apparatus are coloured in accordance with the following code.



As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

The wire which is coloured GREEN-AND-YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol \perp or coloured GREEN or GREEN-AND-YELLOW.

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured red.

Remark:

- This apparatus was produced to BS 800.
- Dieses Modell entspricht der EG-Vorschrift (für Funkstörungsschutz) 87/308/EWG.
- La Société PANASONIC-FRANCE, importateur du matériel MATSUSHITA-JAPON déclare que cet appareil est conforme aux prescriptions de la directive 76/889/C.E.E. modifiée par la directive 87/308/C.E.E.
- Dit model is onderworpen aan de EEG-richtlijn (ter voorkoming van radio-interferentie) 87/308/EEG.
- Denne model opfylder EF direktiv 87/308/EF (for forebyggelse af radiointerferens).
- La Società PANASONIC ITALIA S.p.A., importatrice di questo prodotto, dichiara che questo apparecchio è conforme alle disposizioni della direttiva C.E.E./87/308 (D.M. 13.4.1989).
- Este modelo cumple con la norma EC (para interferencias de radio 87/308/ECC).

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These operating instructions are for use both with model AU-65H and model AU-66H. The AU-66H features an auto tracking function and is provided with a HEAD switch.

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Specifications

Power Supply:	220–240 V AC, 50–60 Hz
Power Consumption:	180 W (AU-65H)
	195 W (AU-66H)

Recording System:	MII format, 4 rotary heads, 2-track helical scanning
Tape Speed:	66.295 mm/sec
Tape:	1/2-inch metal particle tape
Recording Time:	97 minutes (with AU-MPL90 tape)
FF/REW Time:	Less than 3 minutes (with AU-MPL60 tape)
Operating Temperature:	5°C to 40°C
Operating Humidity:	Under 80%
Dimensions (W×H×D):	444×291×574 mm
Weight:	34 kg (AU-65H)/35 kg (AU-66H)

VIDEO

Television Format:	PAL TV system; 625 lines, 50 fields
Modulation System:	Y; Frequency modulation
	C; Time compressed multiplexing, frequency modulation (P _B , P _R)
Bandwidth:	Y; 25 Hz to 5.0 MHz (+1/–2 dB) 5.5 MHz (–3.5 dB)
	C (P _B , P _R); 25 Hz to 1.8 MHz (+1/–2 dB) 2.0 MHz (–3.5 dB)
S/N Ratio:	Y; Better than 47 dB (200 kHz to 5 MHz)
	C (P _B , P _R); Better than 48 dB
	C (AM); Better than 48 dB (1 kHz to 500 kHz)
	C (PM); Better than 50 dB (1 kHz to 500 kHz)
K Factor:	2 T; Less than 2%
	5 T; Less than 3%
Y/C Delay:	Less than 20ns
Linearity:	Less than 3%

AUDIO

Linear (CH1/CH2)

Frequency Response:	50 Hz to 15 kHz (+2/–3 dB)
S/N Ratio:	Better than 56 dB (Dolby NR OFF) (at 3% distortion)
Distortion:	Less than 1.0% at 1 kHz standard input level
Wow and flutter:	Less than 0.1% (DIN WTD)
Erase:	Less than –65 dB at 1 kHz

FM (CH3/CH4)

Frequency Response:	20 Hz to 20 kHz (+1/–2 dB)
Dynamic Range:	More than 85 dB (A WTD)
Distortion:	Less than 0.5% at 1 kHz standard input level
Crosstalk:	Less than –65 dB at 1 kHz standard input level

VIDEO INPUT

VIDEO IN:	BNC×2, loop through with 75Ω ON/OFF switch, 1.0 Vp-p
REF VIDEO IN:	BNC×2, loop through with 75Ω ON/OFF switch, 1.0 Vp-p
COMPONENT IN:	BNC×3
	Y; 1.0 Vp-p, 75Ω
	PB; 0.7 Vp-p, 75Ω
	PR; 0.7 Vp-p, 75Ω
YC (S1-VIDEO) IN:	S1-VIDEO (4P)×1
	Y; 1.0 Vp-p, 75Ω
	C; 0.3 Vp-p (burst level), 75Ω
	(100% colour bars, 0% setup)

VIDEO OUTPUT

VIDEO OUT:	BNC×3
	OUT1; SYNC ON/OFF
	OUT2; COMPOSITE OUT
	OUT3; TC superimpose & P IN P ON/OFF
	Each output; 1.0 Vp-p, 75Ω
COMPONENT OUT:	BNC×3
	Y; 1.0 Vp-p, 75Ω
	PB; 0.7 Vp-p, 75Ω
	PR; 0.7 Vp-p, 75Ω
YC (S1-VIDEO) OUT:	S1-VIDEO (4P)×1
	Y; 1.0 Vp-p, 75Ω
	C; 0.3 Vp-p (burst level), 75Ω
	(100% colour bars, 0% setup)

AUDIO INPUT

AUDIO IN:	XLR 3P×4, CH1/CH2 (linear), CH3/CH4 (FM), −20/0/+4 dBu
	More than 10 kΩ/600Ω, balanced
TIME CODE IN:	BNC×1, 0.5 V to 8 Vp-p, more than 10 kΩ, unbalanced

AUDIO OUTPUT

AUDIO OUT:	XLR 3P×4, CH1/CH2 (linear), CH3/CH4 (FM), −20/0/+4 dBu
	Less than 50Ω, balanced
TIME CODE OUT:	BNC×1, 2.2 Vp-p, less than 50Ω, unbalanced
MONITOR OUT:	XLR 3P×1 (MIX), +0 dBu, less than 50Ω, balanced
HEADPHONES OUT:	6.3 mm stereo jack, −20 dBu to −∞ (variable), 8Ω

REMOTE CONNECTORS

ENCODER REMOTE:	15P×1
REMOTE 2:	9P×1, RS-422A serial remote

STANDARD ACCESSORIES


Power cord
Serial 9-pin cord

OPTIONAL ACCESSORY

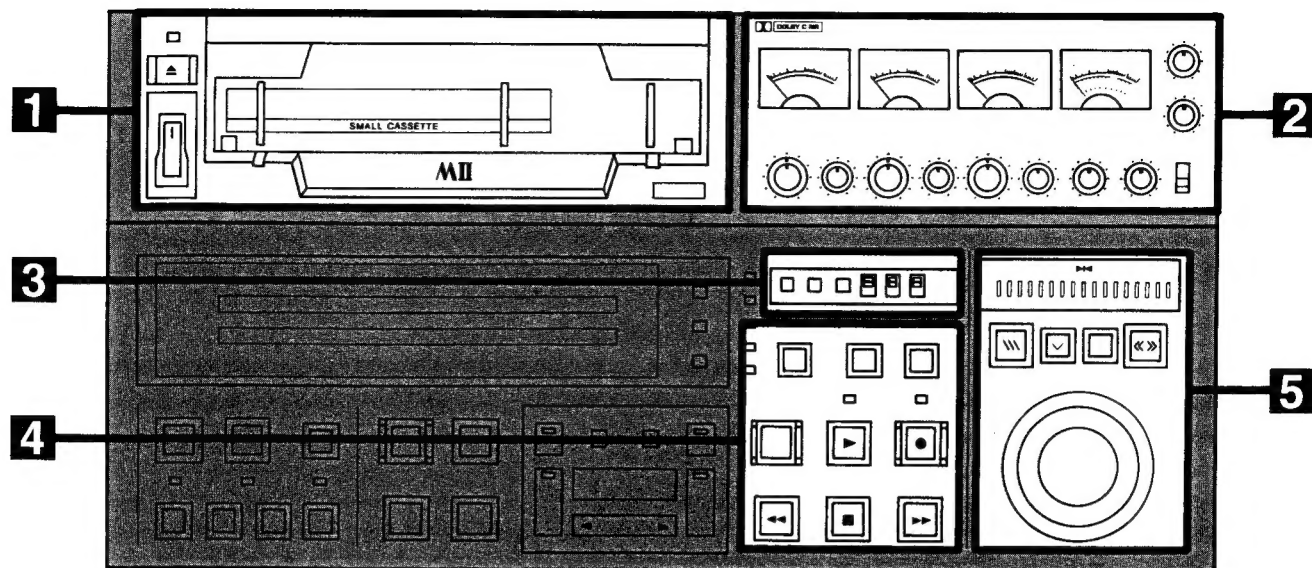
REMOTE 1 (parallel remote) connector:	AU-MK25
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Weight and dimensions shown are approximate.
Specifications are subject to change without notice.

*Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.

**"DOLBY" and the double-D symbol  are trademarks of Dolby Laboratories Licensing Corporation.

Front Panel



1 Power, cassette area

POWER Switch:	Turns on the mains supply.
EJECT Button:	Ejects the tape.
EJECT Lamp:	Lights when a tape is ejected.
Cassette Holder:	This is where the 1/2-inch metal particle tape is inserted.
AUTO OFF Lamp:	This lights when there is something wrong with the unit. While it is lit, only the unit's EJECT button is functional. (See page E-93)

Power Supply Protection Function

The unit is equipped with a protection circuit to guard it against excess current or voltage, and against excessively low voltage. If the protection circuit is triggered by some abnormality, the unit's power is turned OFF automatically. Make sure to investigate the cause of the problem, then the unit's operation can be restored to normal again by switching the power ON.

2 Level control area

LINEAR AUDIO CH1/CH2 Meters:	Displays the linear audio (CH1/2) level.
FM AUDIO CH3 Meter:	Displays the FM audio (CH3) level.
CH4/VIDEO. TRACKING Meter:	Displays the FM audio (CH4) level and the video level or the tracking level.
VIDEO Level Control:	Adjusts the composite video signal level.
TRACKING Control:	Adjusts the tracking.
VIDEO. TRACKING/CH4 Switch:	Switches between the VIDEO. TRACKING and CH4 meter indications.
VIDEO TRACKING;	Set to this position when adjusting the composition video signal level during recording, or when adjusting the tracking during playback.
CH4;	Set to this position when adjusting FM AUDIO CH4.
Audio Level Control:	Pull out and turn to adjust the audio level. Push in to record or play back at the optimum level (preset level).

3 Time code setting area

SHIFT Button:	Shifts the flashing part of the time code display.
ADJ Button:	This changes the value of the flashing part.
START Button:	Press this after completing the time code settings.
INT/EXT Switch:	During time code recording, this selects whether the recording is to use the internal or external time code.
TC/UB Switch:	This switches between the time code and user bits display. (It works only when the TC/CTL switch has been set to the TC position.)
LTC/VITC (AUTO) Switch:	
	LTC: The LTCR or LUBR value is displayed.
	VITC (AUTO): The VITC or VUBR value is displayed.
	LTCR is displayed when VITC has not been recorded on tape.
	•If the time code cannot be read at either position, interpolation is provided by the CTL signal.

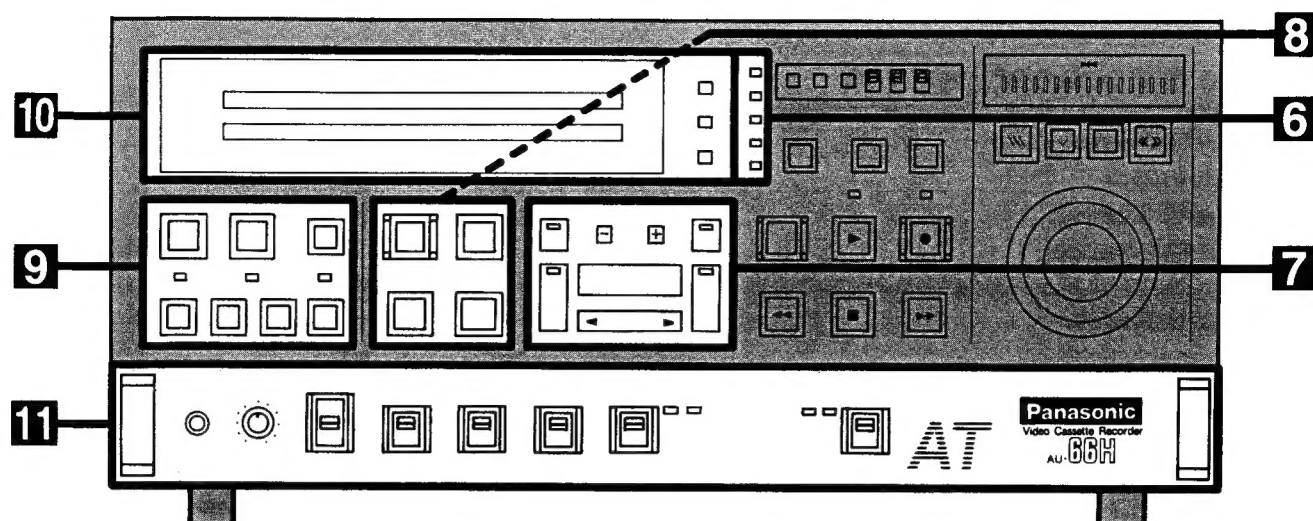
4 Basic control area

READY Button:	This is the READY mode ON/OFF button.
PLAYER/RECORDER Buttons:	These are used during operation in the P IN P mode and when the 9-pin connector is used to connect the unit with another VTR for editing purpose.
	PLAYER Button: This is pressed when operating the player, which is remote controlled by this unit, while using 2 VTRs for editing.
	RECORDER Button: This is pressed when operating the recorder (this unit) while using 2 VTRs for editing.
EDIT Button:	Editing commences when this is pressed together with the PLAY button.
PLAY Button:	To commence Playback mode.
REC Button:	To commence Record mode when pressed together with the PLAY button.
REW Button:	Rewinds the tape at 32 times the normal tape speed.
STOP Button:	Shuts down all modes. A noise-free still picture is obtained when this button is pressed during playback while the MODE switch is set to "TAPE".
FF Button:	Fast forwards the tape at 32 times the normal tape speed.
SERVO LOCK Lamp:	Lights during servo lock.
REC INHIBIT Lamp:	Lights in the recording inhibit mode.

5 Search control area

SEARCH Indicator:	Indicates the operating status of the search dial.
JOG Button:	Press to establish the JOG mode.
VAR Button:	Press to establish the variable mode.
VAR MEMORY Button:	Press when conducting a variable memory operation.
SHTL Button:	Press to establish the shuttle mode.
SEARCH Dial:	Changes the search speed.

Front Panel (cont.)



The above illustration shows the AU-66H as seen from the front. The AU-65H is not provided with a HEAD Switch.

6 LED display area

LIMITER Lamp:

Lights when the front sub-panel AUDIO LIMITER switch is ON.

DOLBY NR Lamp:

Lights when the DOLBY NR switch is ON.

REF SCH Lamp:

Lights when SCH of the reference video signal is within $\pm 60^\circ$ of the standard signal.

INPUT SCH Lamp:

Lights when SCH of the LINE IN video signal is within $\pm 70^\circ$ of the standard signal.

CF Lamp:

Lights in the colour framing mode.

7 Editing point entry area

AUDIO IN Button:

Use this button to enter, check and correct an AUDIO IN point.

IN Button:

Use this button to enter, check and correct an edit IN point.

When pressed in the P IN P double mode, the top right picture freezes at the player's IN entry point.

TRIM +/- Buttons:

Use these button to correct an edit point in 1-frame steps.

SET Button:

Use this button to enter an edit point.

GO TO Button:

Use this button to access an edit point.

AUDIO OUT Button:

Use this button to enter, check and correct an AUDIO OUT point.

OUT Button:

Use this button to enter, check and correct an edit OUT point.

8 Editing control area

AUTO EDIT Button:

Press to execute automatic editing.

PREROLL Button:

Press to execute a preroll operation.

PREVIEW Button:

Press to execute a preview operation.

REVIEW Button:

Press to execute a review operation.

9 Editing mode selection area

ASSEMBLE Button:	Press to establish assemble editing mode.
INSERT Button:	Press to establish insert editing mode.
REC INHIBIT Lamp:	This lights in the record inhibit mode.
Editing Channel Selector Buttons:	These select the editing channel.
	VIDEO/FM: Video/FM (CH3/4) is selected.
	AUDIO CH1: Linear CH1 audio is selected.
	AUDIO CH2: Linear CH2 audio is selected.
	TIME CODE: Time code is selected.
SPLIT EDIT Button:	Press this to establish audio split editing mode.

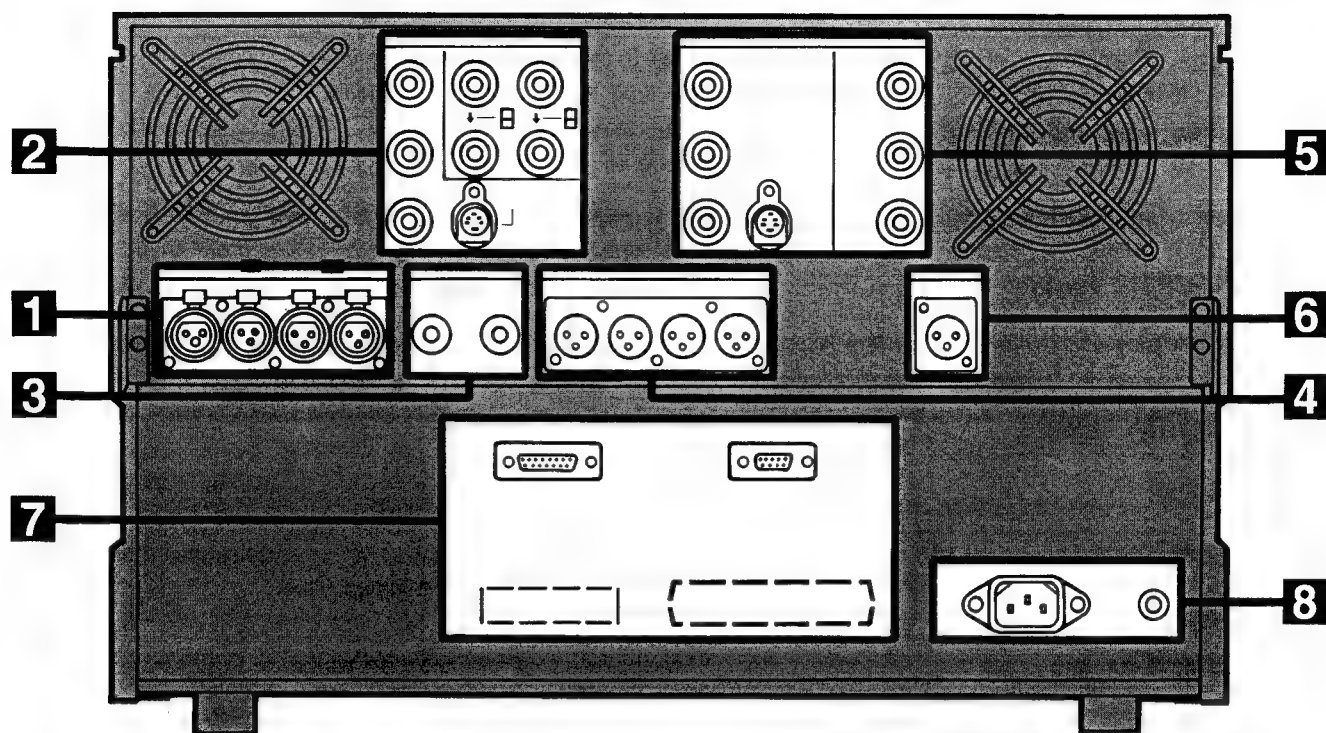
10 Display area

Display:	The tape timer, time code, user bits and error messages appear on this display.
TC/CTL Switch:	Selects whether the time code (TC) or control signal (CTL) is to be used in order to read out the tape position.
RESET Button:	Resets the CTL value to zero.
HOLD Button:	Press to hold whatever is on the display.

11 Bottom panel area

HEADPHONES Jack (6.3 mm):	Connect stereo headphones here.
HEADPHONE LEVEL Control:	Controls the headphones volume.
AUDIO MONITOR Controls:	These select the sound and channel to be monitored.
	CH1/3: For CH1 (or CH3) sound monitoring in both the left (L) and right (R) channels.
	MIX: Monitors CH1 (or CH3) sound in the left (L) channel and CH2 (or CH4) sound in the right (R) channels.
	CH2/4: For CH2 (or CH4) sound monitoring in both the left (L) and right (R) channels.
	LINEAR: Monitors linear sound (CH1/2).
	FM: Monitors FM sound (CH3/4).
MODE Switch:	This selects the monitoring picture in the stop or recording mode.
	TAPE: Monitors the playback picture.
	EE: Monitors the EE picture.
HEAD Switch (AU-66H only):	Selects the head to be used for playback.
	PLAY: Playback takes place via the playback head.
	R/P: Playback takes place via the recording/playback head.
INPUT Switch:	Selects the input signal.
	LINE: Records the composite signal from the LINE IN connector.
CONTROL Switch:	CMPNT/YC: Records the signal from the component input connector or YC input connector.
	REMOTE: Selects remote control.
	LOCAL: Disables the remote control.

Rear Panel



1 AUDIO IN signal area

CH1-4 IMPEDANCE Switch:
CH3/4 SELECT Switch:
LINEAR AUDIO CH1/CH2 Input:
FM AUDIO CH3/4 Input:

Selects the impedance value of CH1-4.
 Selects the signals to be recorded in FM AUDIO CH3/CH4.
 This is the CH1/3 audio input connector.
 This is the CH2/4 audio input connector.

2 VIDEO IN signal area

COMPONENT Connectors:
LINE IN Input Connectors:
YC (S1 VIDEO) Input Connector:
REF VIDEO IN Connectors:

The component signals (Y, Pb and Pr) are supplied separately to these input connectors.
 The composite video signal is supplied to these input connectors (which come with loop-through 75-ohm terminating switch).
 This is the input connector for the YC signal which correspond to the wide screen.
 The reference signal is supplied to these input connectors (which come with loop-through 75-ohm terminating switch).

3 Time code signal area

TIME CODE Input Connector:
TIME CODE Output Connector:

The time code signal is supplied to this connector.
 The time code signal is output from this connector.

4 AUDIO OUT signal area

LINEAR AUDIO CH1/CH2 Output

Connectors:

These are the output connectors for CH1 and CH2 audio.

FM AUDIO CH3/CH4 Output Connectors:

These are the output connectors for CH3 and CH4 audio.

5 VIDEO OUT signal area

YC (S1 VIDEO) Output Connector:

This is the output connector for the YC signal which correspond to the wide screen.

COMPONENT Output Connectors:

The component signals (Y, Pb and Pr) are output separately from these connectors.

VIDEO 1 Output Connector:

The video signal with sync (VBS) or without sync—depending on the position selected by the circuit board (W2 encoder board) switch—is output from this connector.

VIDEO 2 Output Connector:

The composite signal is output from this connector.

VIDEO 3 Output Connector:

Depending on the setting of the SUPER switch on the B1.SYSTEM CONTROL board, the VTR operating mode, time code or control signal can be superimposed on this output, besides P IN P mode.

There is a delay equivalent to approximately 35ns compared with the VIDEO 1 and VIDEO 2 outputs for an exact phase alignment with that of the reference video signal.

6 AUDIO MONITOR signal area

•L, R or MIX sound is output, depending on the setting of the AUDIO MONITOR switch.

AUDIO MONITOR MIX Output Connector: The L, R and MIX sound is output from this connector.

7 Remote signal area

REMOTE 2 (9P) Connector:

RS-422A serial remote connector

REMOTE 1 (50P) Connector:

Terminal window for using the optional 50-pin parallel remote connector.

Set the front panel CONTROL switch to "REMOTE" and the front sub-panel REMOTE switch to "1".

ENCODER REMOTE Connector:

This is used for the remote control of the internal encoder from an external device.

8 Power supply area

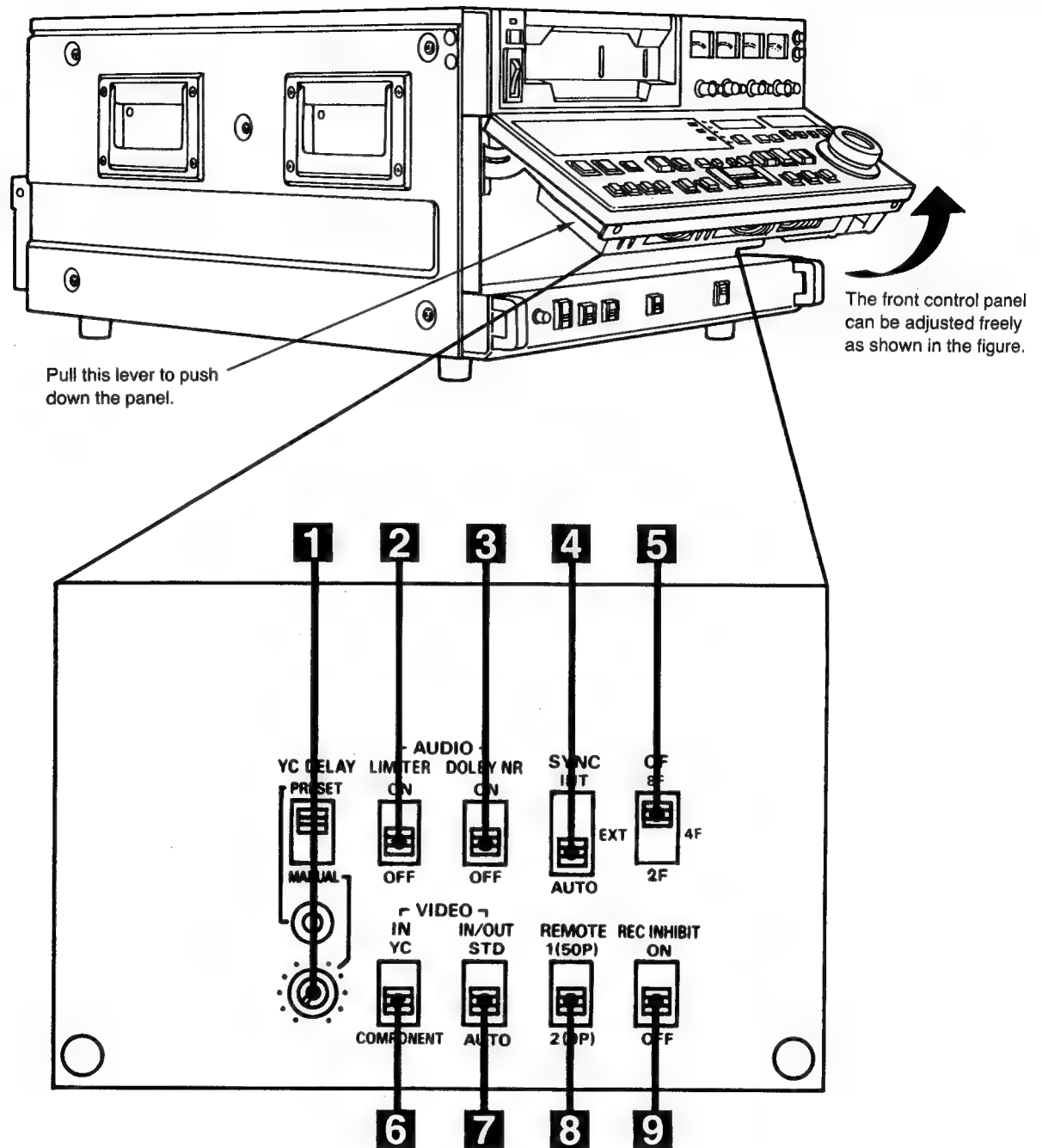
AC IN Socket:

Use the accessory power cord to connect this socket to the power outlet.

GND Terminal:

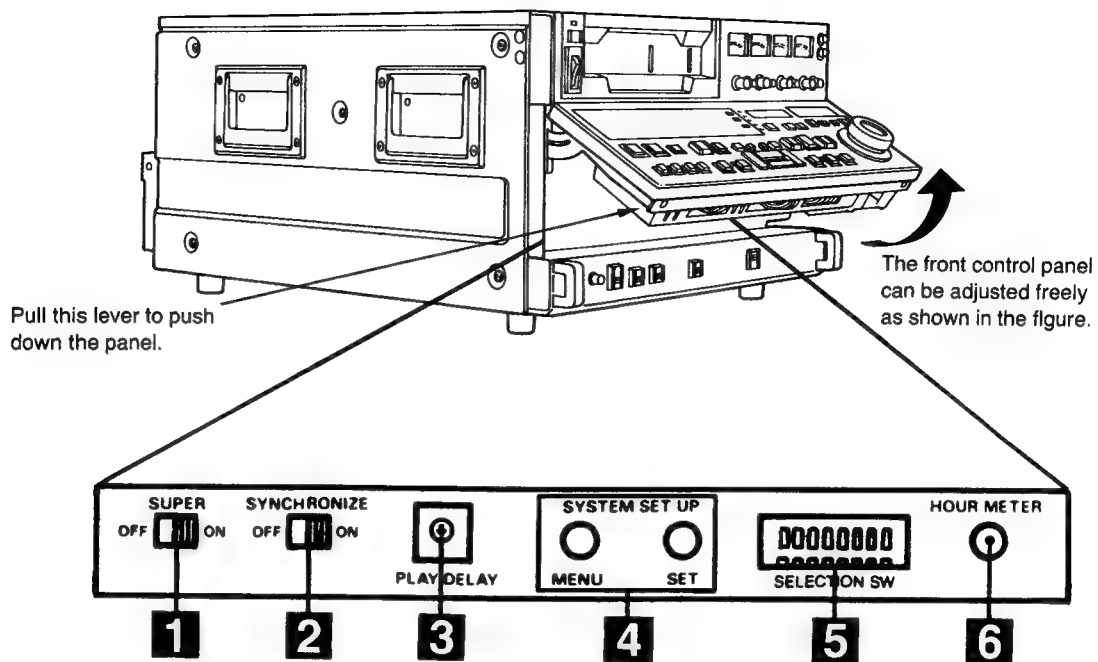
Be sure to connect this to ground when this unit is connected with another device.

Front Sub-Panel



-
- 1 YC DELAY Switches/Controls:**
PRESET: YC timing is set to the preset status.
MANUAL: YC timing can be adjusted as desired.
- 2 AUDIO LIMITER Switch:** This works for linear audio signals only.
ON: The volume limiter circuit is activated when the input signal level is excessively high.
OFF: The audio signals are recorded at their original level.
- 3 DOLBY NR Switch:** ON/OFF switch for Dolby C Noise Reduction. (This works only for linear audio signals.)
- 4 SYNC Switch:** This selects the servo reference signal.
INT: Synchronizes the servo with the internal reference signal during normal playback.
EXT: Synchronizes the servo with the external reference signal.
AUTO: Synchronizes the servo with the video input signal during recording and editing, and with the external reference signal during playback.
- 5 CF Switch:** This selects the colour framing mode during editing and playback.
8F: For recording, playback and editing in 8-field units.
4F: For recording, playback and editing in 4-field units.
VISC control is performed.
2F: For recording, playback and editing in 2-field units.
- 6 VIDEO IN Switch:** This selects COMPONENT or YC as the video input signal.
YC: For YC signal input.
COMPONENT: For component signal input.
- 7 VIDEO IN/OUT Switch:**
STD: For supplying a regular composite signal through the time base corrector (TBC).
AUTO: For automatically identifying whether the signal has passed through the TBC or not.
- 8 REMOTE Switch:**
1 (50P): When using an optional REMOTE 1 (50P) connector
2 (9P): When using the REMOTE 2 (9P) connector
- 9 REC INHIBIT Switch:**
ON: The REC INHIBIT lamp lights to indicate that recording is inhibited.
OFF: Signals can be recorded in this position.

B1.SYSTEM CONTROL Board



- 1 SUPER Switch:**

This is the ON/OFF switch for P IN P mode and superimposing time code, status or other character signals onto the signal which is output from the VIDEO 3 connector.
- 2 SYNCHRONIZE Switch:**

When this is set to ON, operation will be synchronized when controlling the player in an editing system where this unit is serving as the recorder.
- 3 PLAY DELAY Switch:**

This sets the duration (in frame units) of the transition from the stop mode to the play mode. Any value from 0 to 15 can be set.
- 4 SYSTEM SET UP Buttons:**

These are used to change the unit's setup and moving the sub picture position in the P IN P signal mode.
- 5 SELECTION SW:**

Not used. (All switches are set to OFF.)
- 6 HOUR METER Button:**

When this is pressed, the accumulated values for the "Total power ON time" and "Drum rotation time" appear on the display and on-screen.

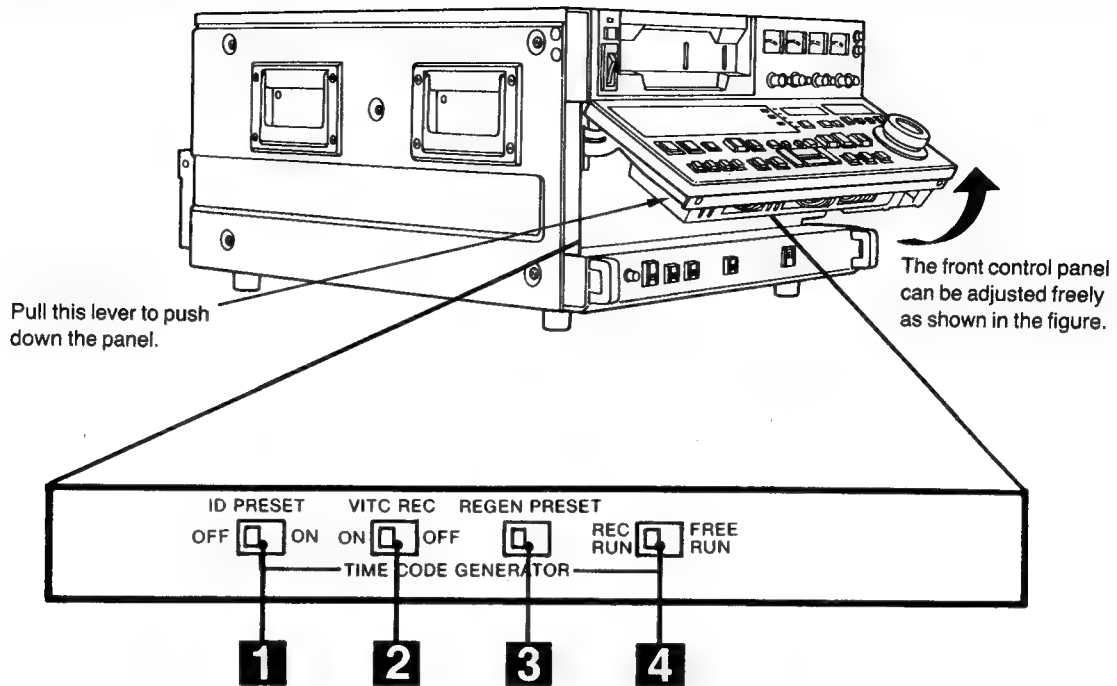
Display indication

P00000H D00000H

On-screen display

POWER ON 00000 HOURS
DRUM ON 00000 HOURS

B2.TCG/TCR Board



- 1 ID PRESET Switch:**

This switch is used to select the ID code. User bits, such as the VTR No., that are likely to be used frequently can be set in advance as a characteristic code (ID code) for the VTR. This ID code can be called whenever necessary. When the set-up menu item No.6008 "UB REAL TIME" is OFF, the following selection can be made.

ON: When the VTR is in the STOP mode, the ID code can be set. When the VTR is in the recording mode, the ID code is recorded.

OFF: The ID code is not set. Instead, the normal user bit values are set/recorded/displayed.
- 2 VITC REC Switch:**

ON: To record the new VITC value onto tape.

OFF: The new VITC value is not recorded.
- 3 REGEN/PRESET Switch:**

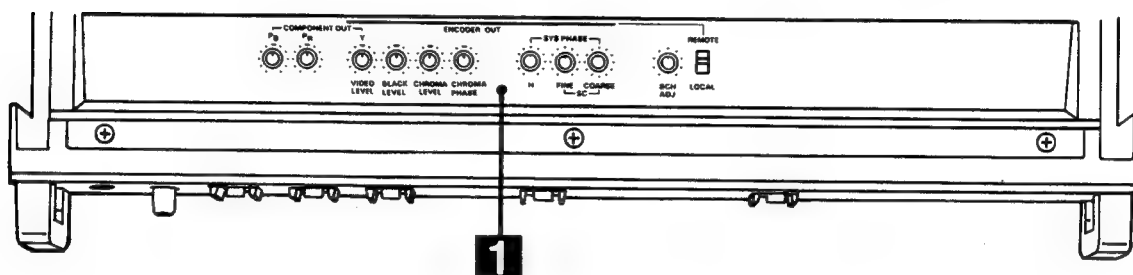
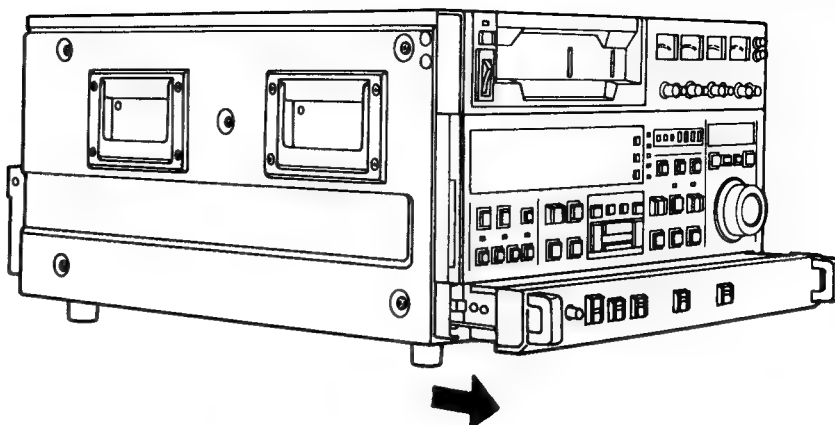
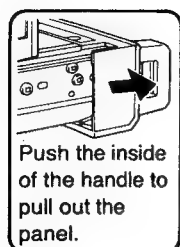
REGEN: To synchronize the internal time code with the playback time code or external time code.

PRESET: To use the internal time code.
- 4 REC RUN/FREE RUN Switch:**

REC RUN: The time code runs only during recording.

FREE RUN: The time code runs in real time, regardless of the operating mode of the VTR.

Preset Panel



1 ENCODER OUT control area

PB/PR Controls:

VIDEO LEVEL Control:

BLACK LEVEL Control:

CHROMA LEVEL Control:

CHROMA PHASE Control:

SYS H PHASE Control:

SYS SC Controls:

SCH ADJ Control:

REMOTE/LOCAL Switch:

Adjust the level of the COMPONENT output signals.

Adjusts the level of all the video signals except the sync and burst.

Adjusts the black level.

Adjusts the chroma level.

Adjusts the chroma phase.

Adjusts the system H phase.

Adjust the system SC phase.

FINE: For continuous adjustment in just over a 90° range; 360° coverage.

COARSE: For adjustment in 4 steps of 90° each.

This adjusts the SC phase in relation to the sync signal supplied from the VIDEO output connector.

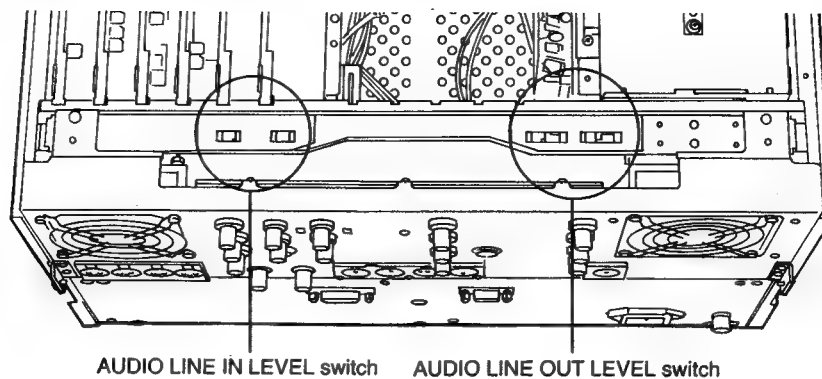
REMOTE: To adjust the encoder from an external unit.

LOCAL: To adjust the encoder using this unit.

Note:

If the ENCODER REMOTE connector has not been connected on the rear panel, LOCAL mode is selected automatically.

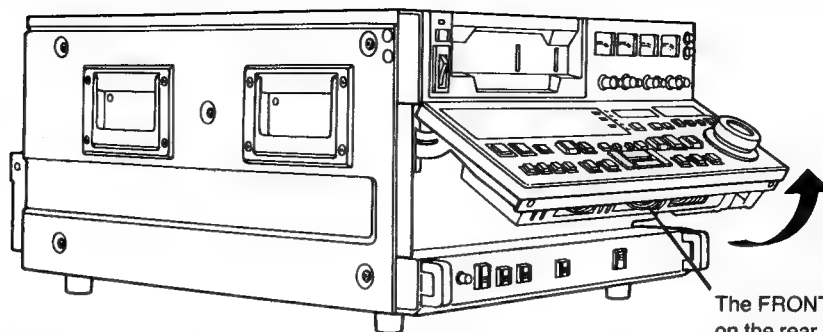
Circuit Boards



CAUTION: TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, REFER CHANGE OF SWITCH SETTING INSIDE THE UNIT TO AUTHORIZED SERVICE PERSONNEL.

PCB	SW No.	Switch	Function	Initial setting
W1 PCB TBC & SYNC GEN	SW4/5/8	V-blanking selector switch	<p>Blanks the video signal during the V-blanking interval (blanking when in ON position).</p> <p>SW4: 8 9 10 11 (Not used) 13 14 15 16 17 (LINE)</p> <p>SW5: 18 19 20 21 (LINE)</p> <p>SW8: 7 LINE</p> <p>When the unit is used as a player during editing, if the VITC insert line position on the tape differs from the settings of the editor, set these switches ON to blank the VITC insert line.</p>	ALL OFF
	SW201	Frame detection switch	<p>Detects the video input frame when there is no TBC.</p> <p>ON: Detection takes place.</p> <p>OFF: Detection is inhibited.</p>	ON
	SW203	VIDEO phase switch	Adjusts the video phase.	9
W2 PCB ENCODER	SW201	SYNC ON/OFF switch	<p>Adds the SYNC signal to the VIDEO OUT1 output signal.</p> <p>ON: SYNC signal is added.</p> <p>OFF: SYNC signal is not added.</p>	ON
W3 PCB MOD & DEMOD	SW1	VIDEO/SYNC meter switch	Selects VIDEO meter.	VIDEO
AUDIO I/O PCB	SW101*/301*	AUDIO LINE IN LEVEL switch	<p>Sets the CH1/2 (SW101) or CH3/4 (SW301) audio input level.</p> <p>–20/0/+4 dBu</p>	0 dBu
	SW102/302	AUDIO LINE OUT LEVEL switch	<p>Sets the CH1/2 (SW102) or CH3/4 (SW302) audio output level.</p> <p>–20/0/+4 dBu</p>	0 dBu

*At the time of shipping from the factory, this unit is adjusted so that the audio level meter indicates –4 dB with input of a 1 kHz standard signal.



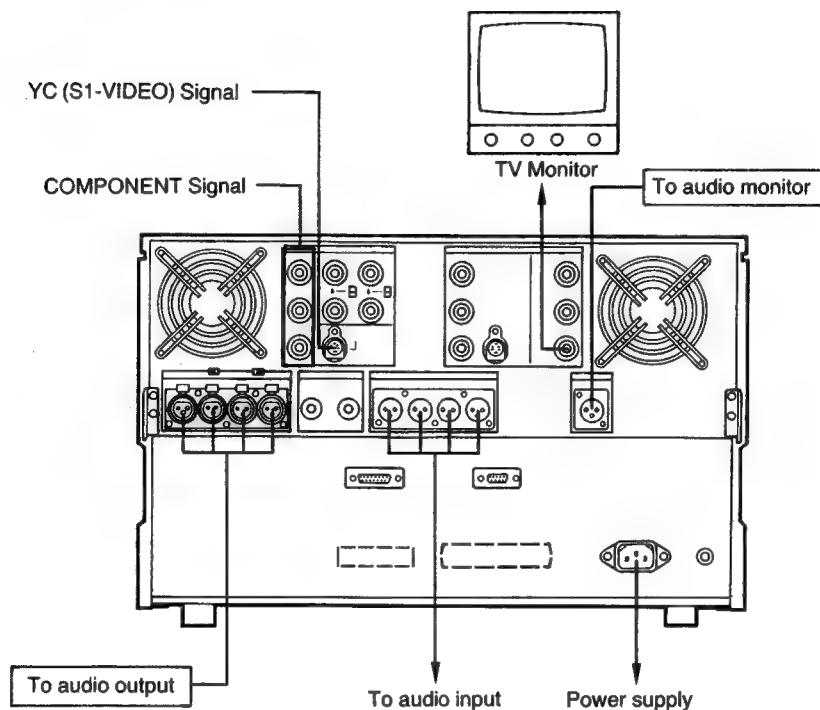
The FRONT PANEL circuit board is on the rear side of the front panel.

PCB	SW No.	Switch	Function	Initial setting
FRONT PANEL	SW1	Preroll time switch	This selects the preroll time to any value from 0 to 15 secods.	5 sec.
	SW2-1	Not use	—	OFF
	SW2-2	NEGATIVE display switch	This selects whether "NEGATIVE" is to be indicated on the display when the IN point is equal to, or less than, the OUT point during edit point entry. ON: "NEGATIVE" appears in block 2. OFF: "NEGATIVE" does not appear.	OFF
	SW4-1	Remaining tape display switch	This selects whether the remaining tape is to be indicated on the display. ON: Displayed when block 3 is empty. OFF: Displayed all the time.	OFF
	SW4-2	TSO switch	Selects TSO in accordance with the connected machine. ON: TSO for AU-650, AU-620 only. OFF: TSO for AU-750, AU-650B, AU-65, AU-65H, AU-66H, AU-630, AU-640 only (This can be changed in 1% steps up to $\pm 15\%$).	OFF
	SW4-3~4-6	Not used	—	OFF
	SW4-7	Forced EE selector switch	This selects the forced EE mode during tape eject. ON: EE mode is set all the time regardless of the MODE switch position. OFF: Mode corresponds to MODE switch setting.	OFF

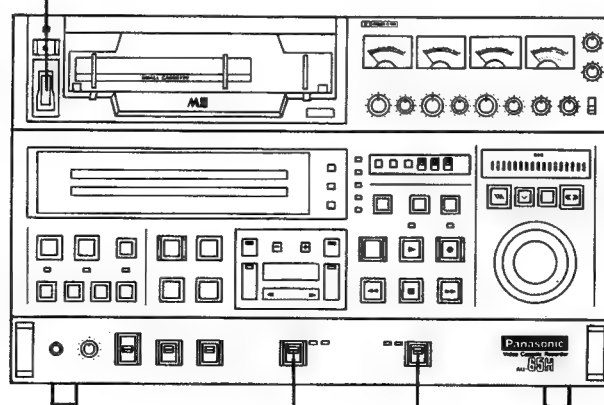
Recording, Playback and Editing with 1 Unit

NOTE:

- Make absolutely sure that the CONTROL switch is in the LOCAL position.



Set POWER to "ON".

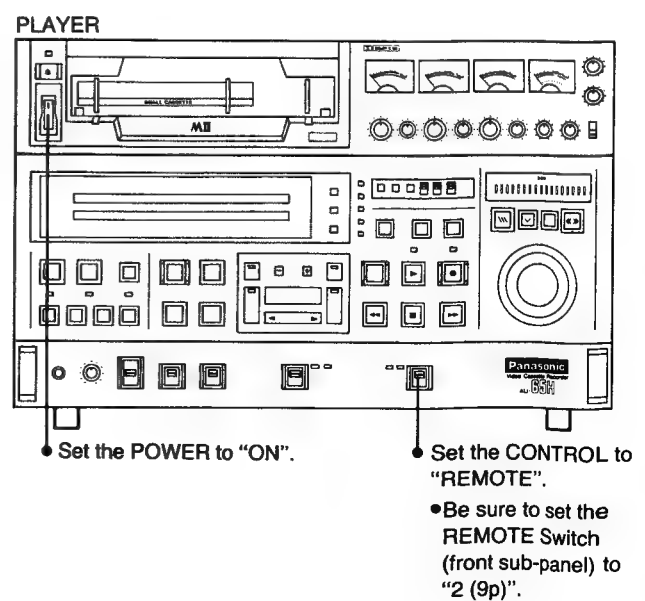
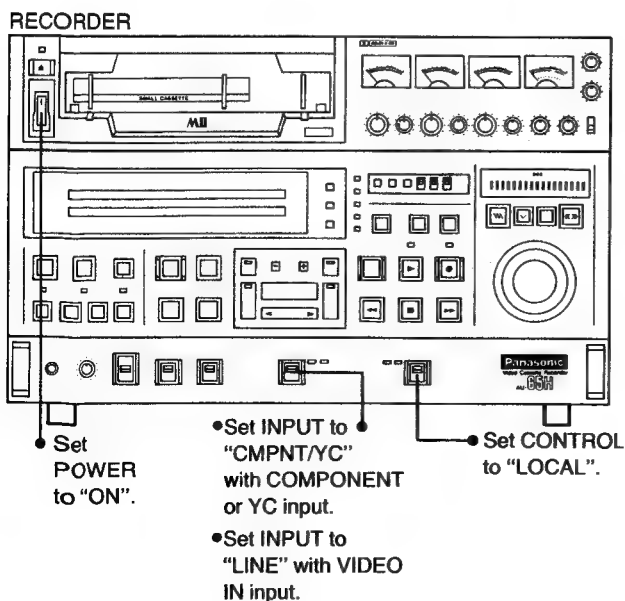
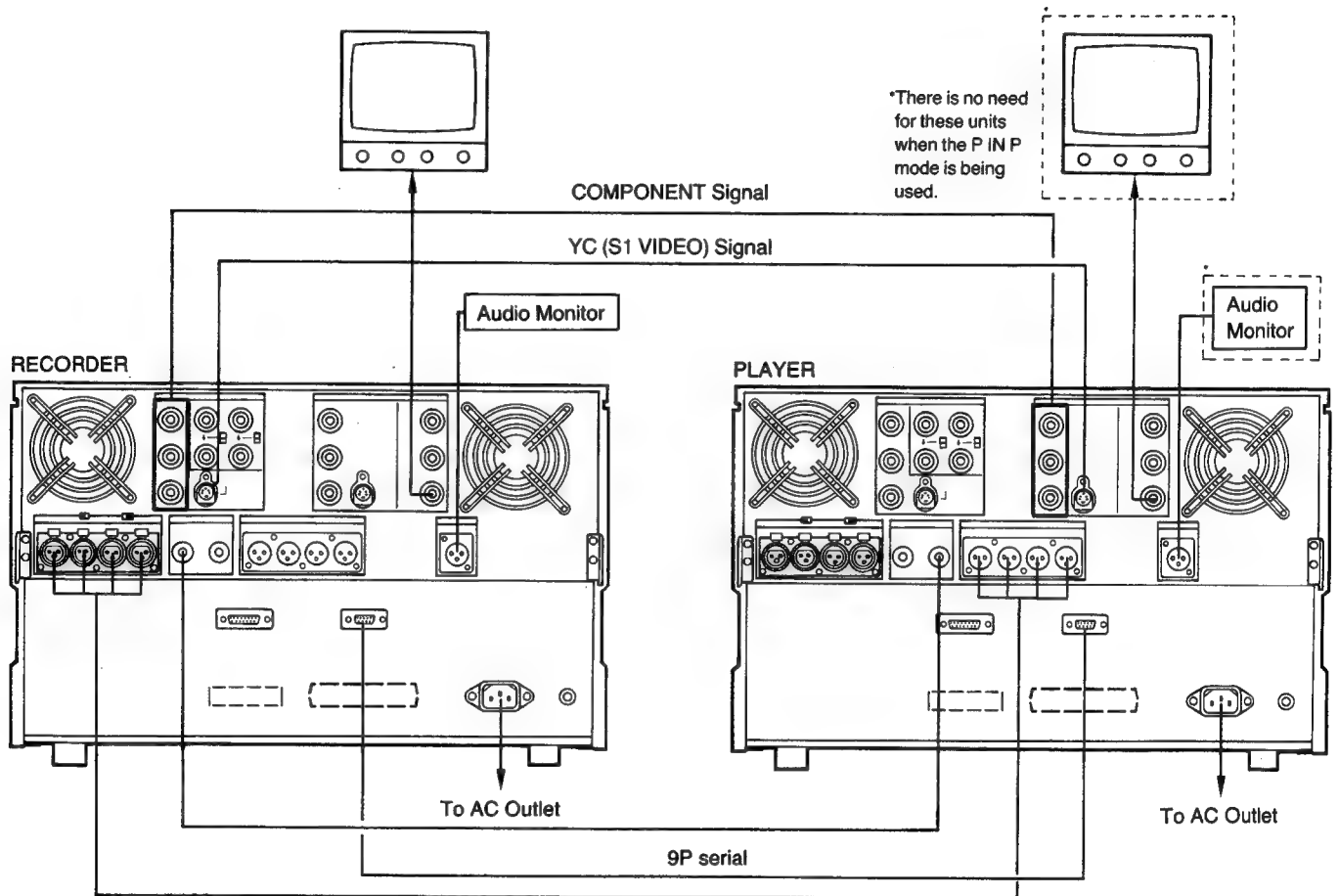


- Set INPUT to "CMPNT/YC" with COMPONENT or YC input.
- Set INPUT to "LINE" with VIDEO IN input.

- Set CONTROL to "LOCAL".

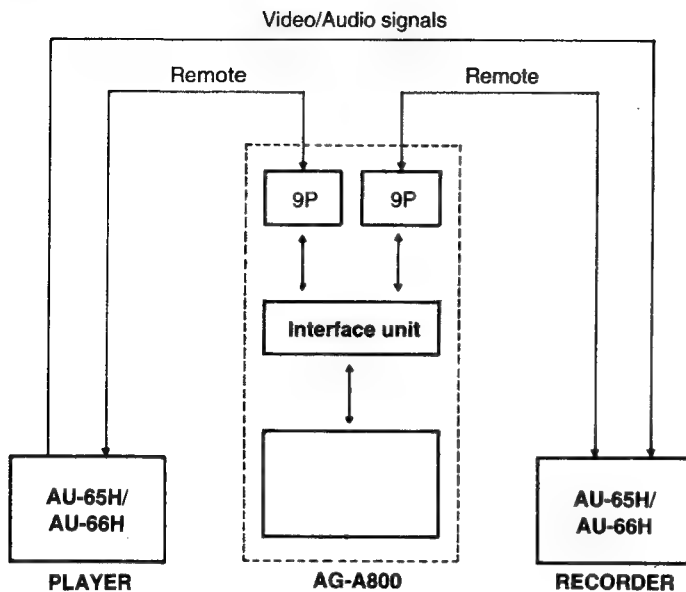
Recording, Playback and Editing with 2 Units

- Set the CONTROL switch to REMOTE, and for a 9-pin serial connection set the REMOTE switch to 2(9P).
- When used in the P IN P mode, the signals of both the player and recorder can be monitored on a single screen.
- To view the picture on a wide screen, perform the YC connection or component connection.

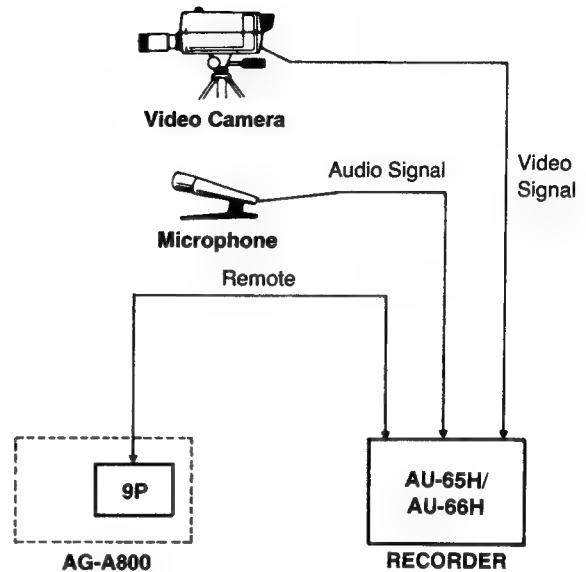


Using an Editor

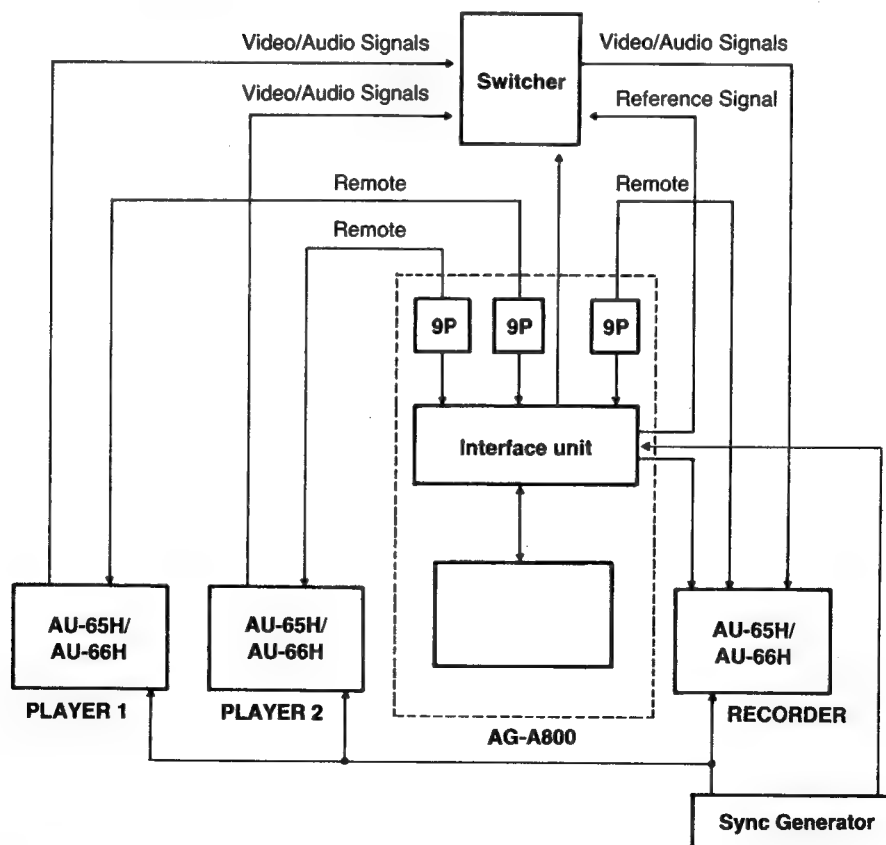
Basic system



Camera/EXT. Input Signal Editing

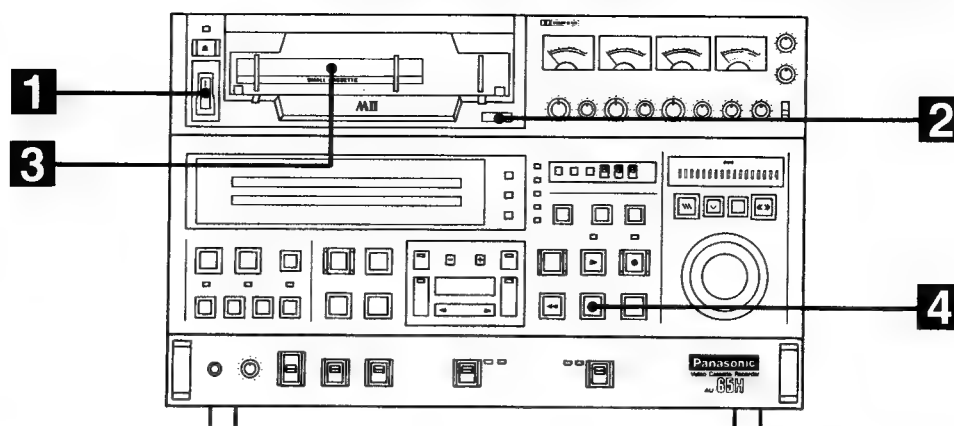


System configured with 2 players



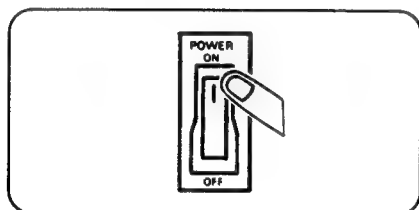
For further details, refer to the AG-A800 editing controller instruction manual (option).

Power On/Cassette Insertion

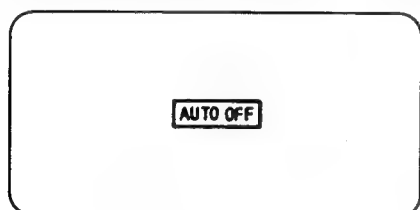


Check that the equipment has been connected properly before proceeding with operation.

1 Switch on the power.

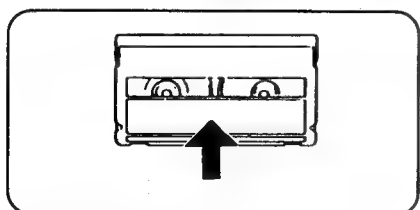


2 Check that the AUTO OFF lamp has not lit.



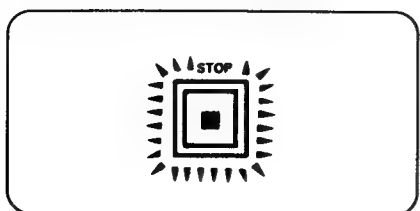
This lamp lights to indicate condensation or some other abnormal condition. In this case, all operations except eject are disabled.

3 Insert the cassette tape into the cassette holder.



Push the tape straight into the slot position without forcing it.

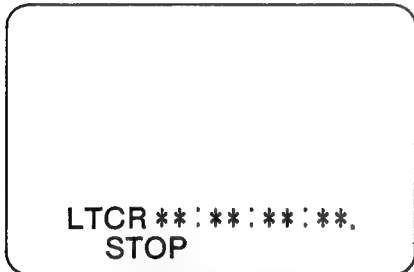
4 Check that the STOP button lamp has lit.



As soon as the cassette is inserted, the cylinder automatically rotates, the tape is loaded and the unit is placed in the STOP mode. The EJECT lamp goes off.




1



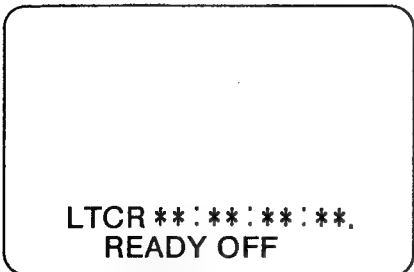
READY OFF/ON mode

READY



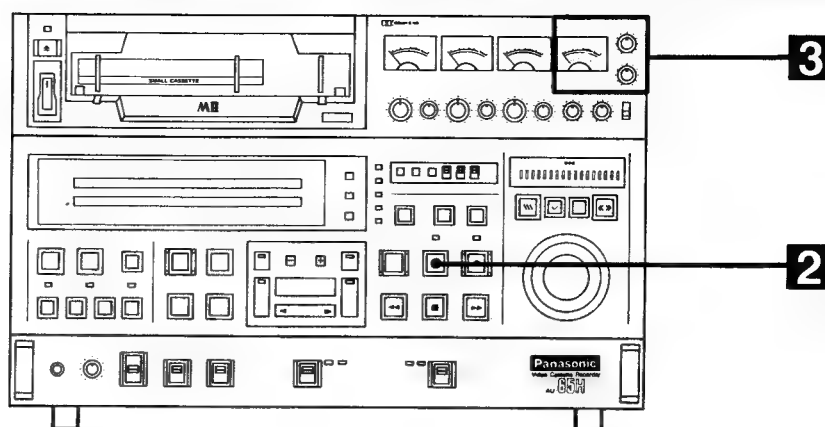
LTCR **: **: **: **: **: **: *
READY OFF

- The VTR operating mode display is set using the dial menu function (item No.2004).



The VTR operating mode display is set using the dial menu function (item No.2004).

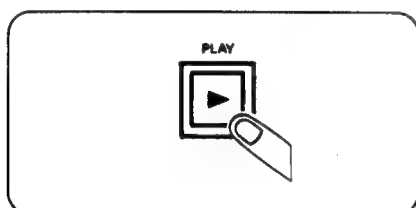
Playback



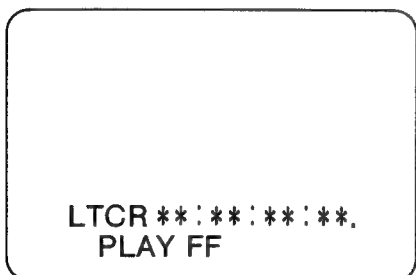
1 Insert the cassette and place the unit in the stop mode.

(See page E-24)

2 Press the **PLAY** button.



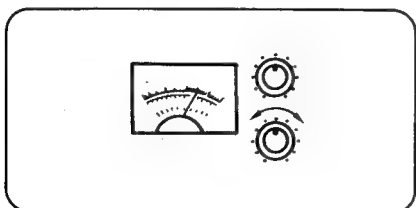
Normal playback now commences.



Superimpose display

•The VTR operating mode display is set using the dial menu function (item No.2004).

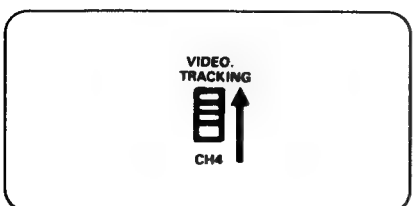
3 Adjust the **TRACKING** level.



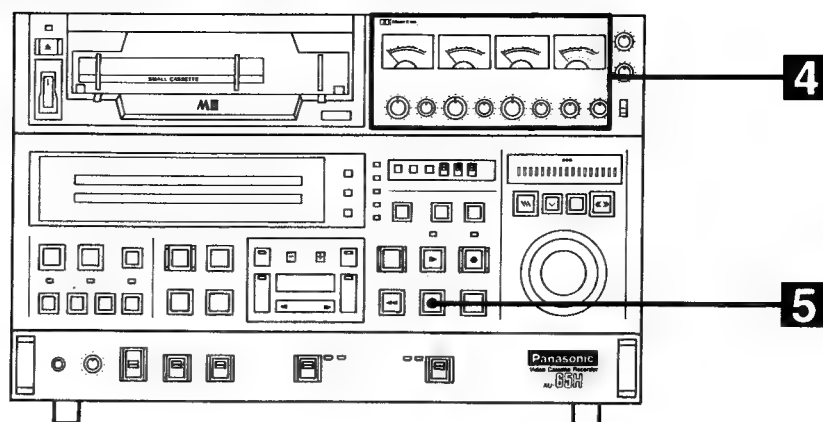
Adjust the **TRACKING** control until the tracking meter deflects fully to the right.

Normally, this is set to its centre clickstop position.

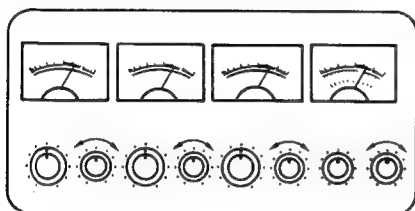
•The AU-66H features an auto tracking function which obviates the need for the tracking adjustment.



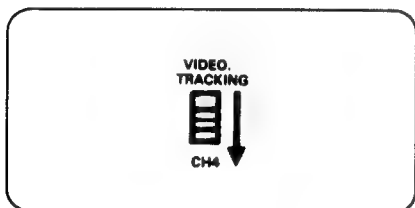
Make sure to set the **CH4/VIDEO. TRACKING** switch to the "VIDEO. TRACKING" position.



4 Adjust the audio playback level.

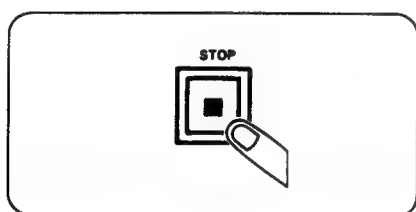


Pull out the audio level controls and adjust the level by turning them clockwise or counterclockwise. Normally, they are kept at their "IN" positions. The sound is played back at its optimum (preset) level.



Make sure to set the CH4/VIDEO. TRACKING switch to the "CH4" position.

5 Press the STOP button to stop playback. (Freeze function)



When this button is pressed, the unit is placed in the stop mode.

Noise-free still pictures are played back.

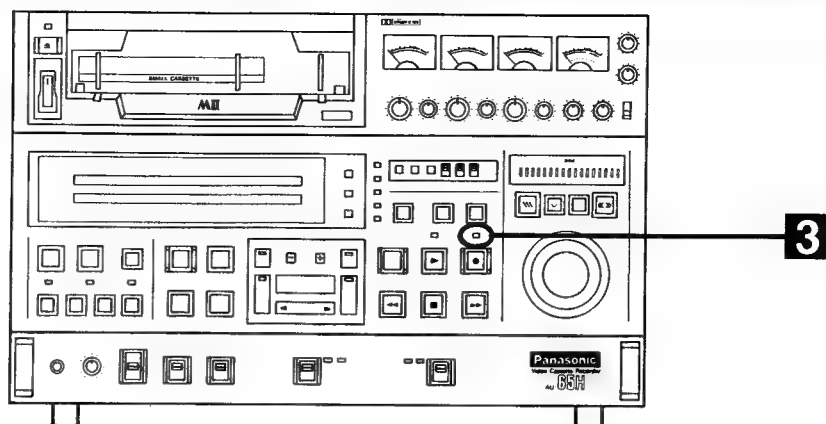
EE (Electronic to Electronic) Check of Audio/Video Input Signals

- When the VTR is in the playback, search (JOG, SHTL, VAR), fast forward or rewind mode, audio/video input signals can be monitored while holding down the REC button.
- When the VTR is in the stop or eject mode, audio/video input signals can be monitored by pressing the REC button. Pressing the STOP button causes the VTR to resume to the previous mode.

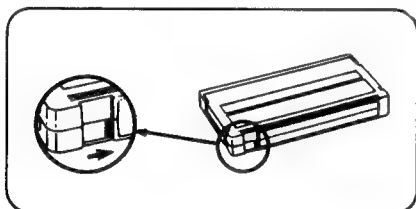
NOTES:

- During playback, check that the SERVO lamp has lit. The playback picture will be disturbed if the lamp is OFF or flashing.
- Use the dial menu (No. 1007) function to set whether the VTR is to be placed in the stop or auto rewind mode when the tape ends.
- The freeze function (dial menu No. 1013) works only when the stop mode is established from playback. It is released when the mode is changed. However, it is not released in the READY OFF mode.

Recording



1 Insert the cassette and place the unit in the stop mode.

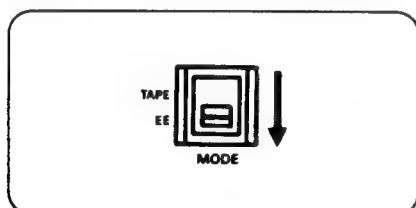


(See page E-24)

Set the accidental erasure prevention lever on the recording cassette to the right.

• If this lever is at the left, the REC INHIBIT lamp will light and recording will not be possible.

2 Set the MODE switch to EE.

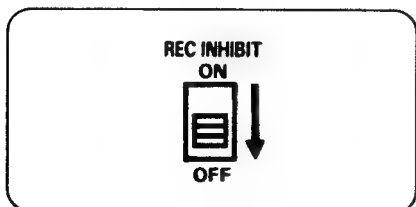


EE pictures now appear on the monitor.

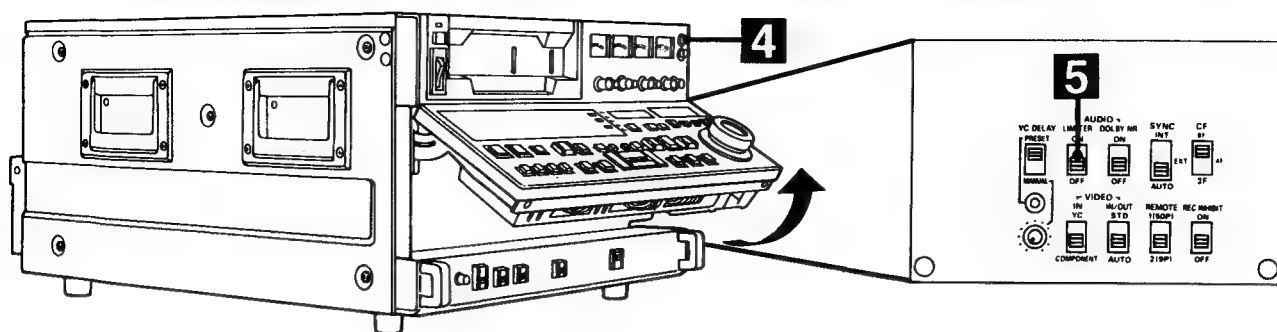
3 Check that the REC INHIBIT lamp is OFF.



Recording cannot be performed if the REC INHIBIT switch is ON.



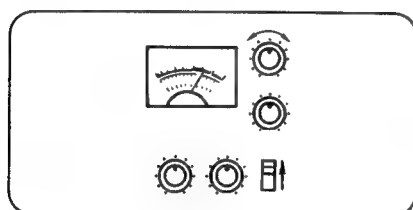
If the REC INHIBIT lamp is ON, set the REC INHIBIT switch to OFF.



4 Adjust the video level (for line signal recording only).

•The level of component signals cannot be adjusted manually.

1) Pull the VIDEO level control and adjust.

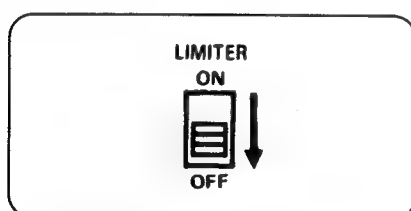


Adjust it so that the meter pointer deflects within the blue area.

•Make sure to set the CH4/VIDEO. TRACKING switch to the "VIDEO. TRACKING" position.

5 Adjust the audio level.

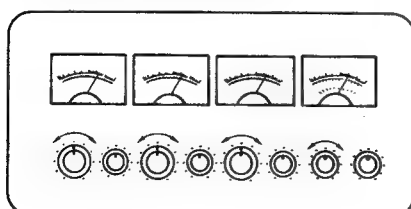
1) Set the AUDIO LIMITER switch to OFF.



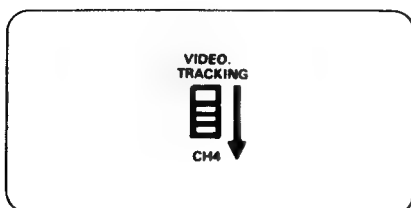
After the audio level has been adjusted, set this switch to the desired position.

For more details on this switch, refer to page E-37.

2) Pull the AUDIO REC level controls and adjust.

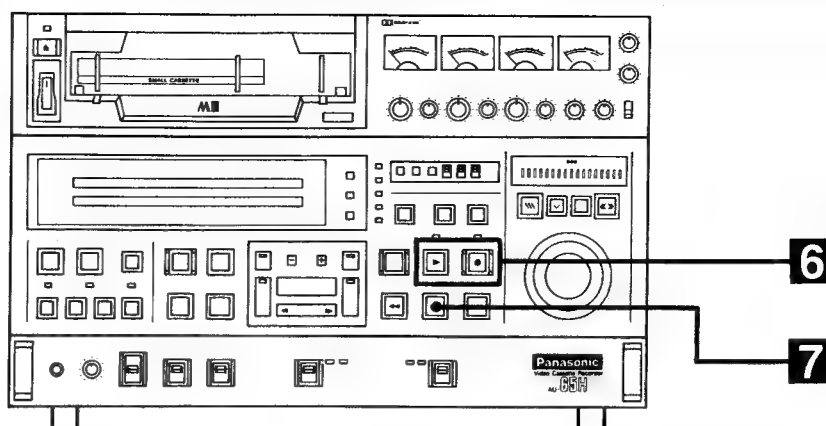


Adjust them so that the maximum sound volume does not exceed the 0 VU mark.

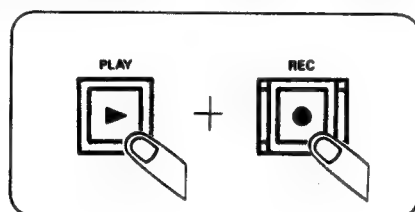


•Make sure to set the CH4/VIDEO. TRACKING switch to the "CH4" position.

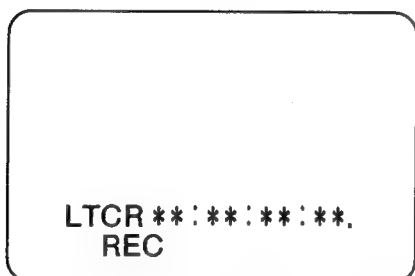
Recording (cont.)



6 Press the **PLAY** button while holding down the **REC** button.

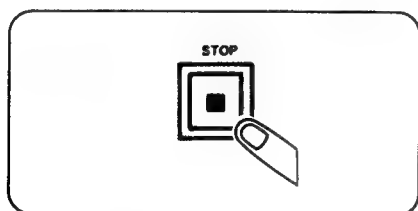


The **PLAY** and **REC** buttons light, and recording commences.



Superimpose display

7 Press the **STOP** button to stop recording.

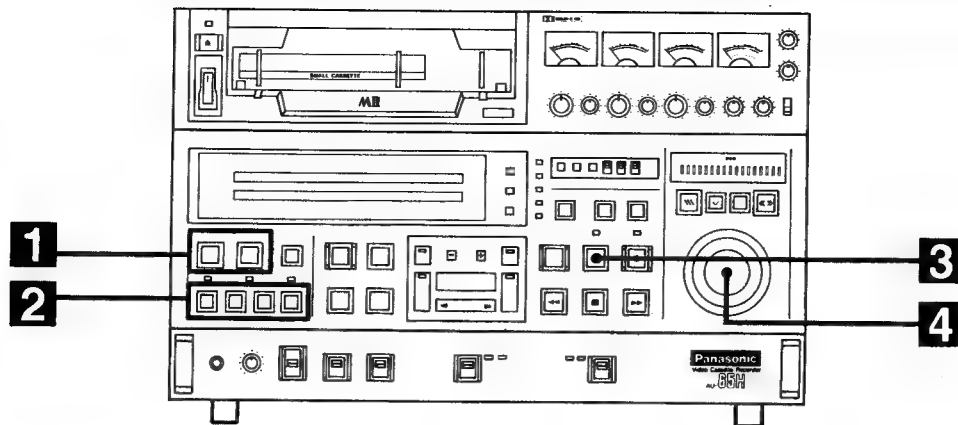


The recording will be stopped and the unit placed in the stop mode.

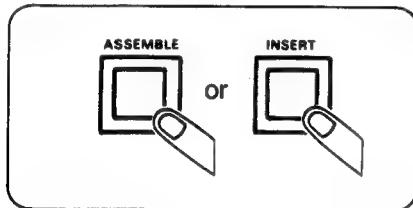
NOTES:

- During recording, check that the **SERVO** lamp has lit. The playback picture will be disturbed if the lamp is off or flashing.
- Use the dial menu (No. 1007) function to set whether the VTR is to be placed in the stop or auto rewind mode when the tape ends.

Manual Editing

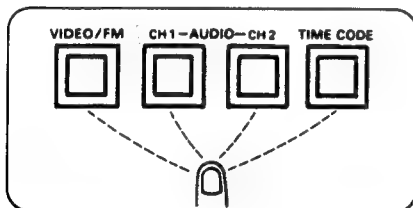


1 Select the editing mode.



ASSEMBLE: For assemble editing
INSERT: For insert editing

2 Select the editing channel.



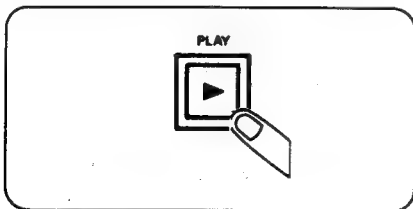
For assemble editing:

Press the buttons corresponding to the channels which will not be used for editing to turn off their lamps.
 The VIDEO/FM button lamp cannot be turned off.

For insert editing:

Press the button corresponding to the channels which will be used for editing and turn on their lamps.

3 Press the PLAY button.

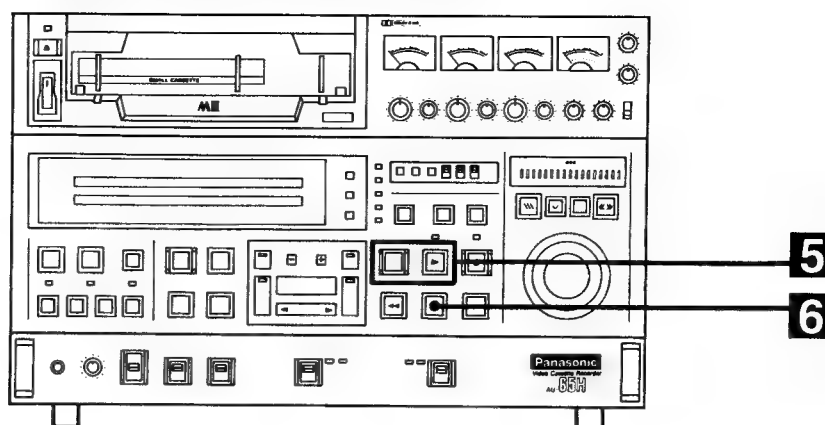


The VTR is placed in the play mode.

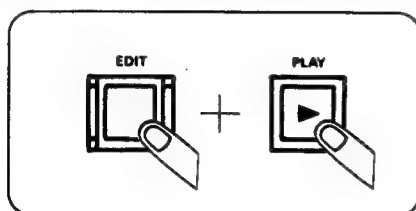
4 Search for the edit start position

While monitoring the screen, search for the position (IN point) where editing is to commence.

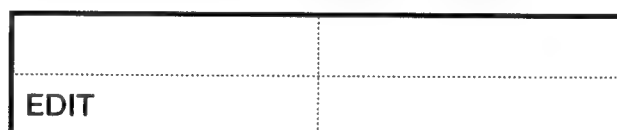
Manual Editing (cont.)



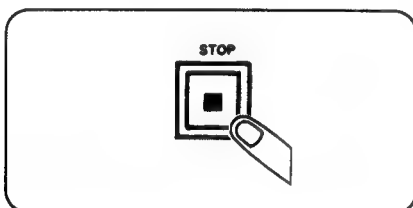
5 Press the PLAY and EDIT buttons together at the IN point.



The following appears on the display and editing starts.



6 Press the STOP button.



While monitoring the screen, press the STOP button at the position (OUT point) where editing is to end.
The VTR is placed in the stop mode and editing ends.

EE (Electronic to Electronic) Check of Audio/Video Input Signals

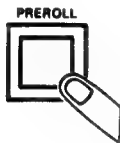
- When the VTR is in the playback, search (JOG, SHTL, VAR), fast forward or rewind mode, input signals selected in the Insert or Assemble mode can be monitored in the EE while holding down the EDIT button.
- When the VTR is in the stop mode, input signals selected in the Insert or Assemble mode can be monitored in the EE by pressing the EDIT button. Pressing the STOP button causes the VTR to resume to the previous mode.
- If a monitor is connected only to the recorder side and the recorder is changed to the player control mode by pressing the PLAYER button while holding down the REC or EDIT button in the VTR-to-VTR edit, EE of the player's audio/video signals can be checked on the recorder's monitor.

NOTE:

- The edit IN and OUT points are not entered with manual editing.



1



Superimpose display

The VTR conducts the preroll operation.

- When the edit IN point has been entered, the tape is rewound from that point for the duration of the time setting (see below), and the stop mode is established.
- When the edit IN point has not been entered, the tape is rewound from the position where the button was pressed for the duration of the time setting (see below), and the stop mode is established.
- When the edit IN point has not been entered, the position where the button was pressed is entered as the edit IN point and, for prerolling, dial menu function item No.4003 is set to 01.

Setting the preroll time

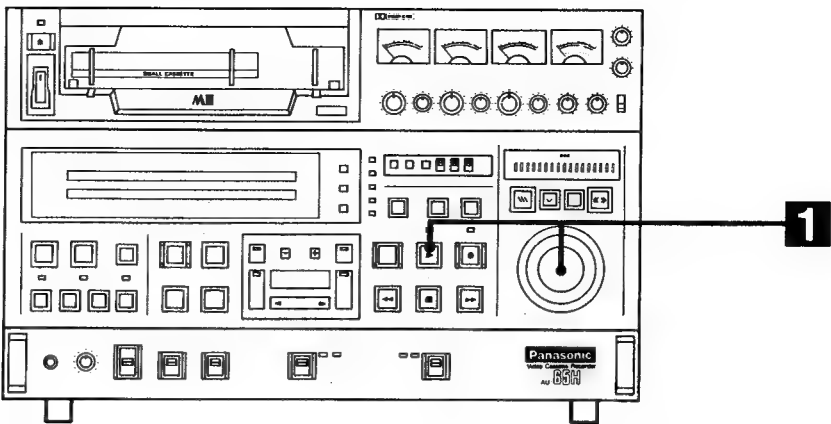
Adjust SW1 on the front panel to change the preroll time.



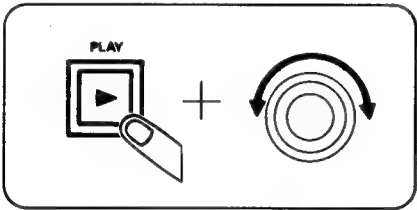
SW1	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
Preroll time (sec.)	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

NOTE:

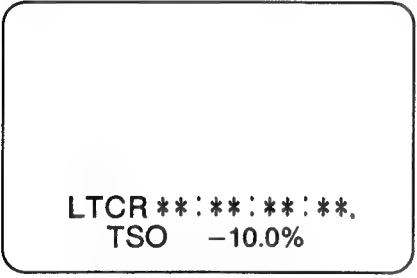
- The time code or CTL signal must be continuously recorded between the edit IN and preroll points.

[illegible]

- 1** Turn the search dial while holding down the **PLAY** button.

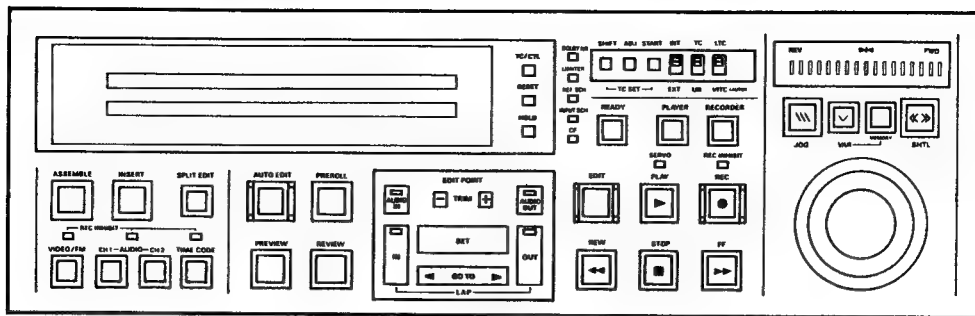


This enables the playback speed to be varied in 1% units up to $\pm 15\%$. The TSO function is released when the PLAY button is pressed.



Superimpose display

Displays



1 Block 1 displays

CTL: Control signal
 LTCR: Value read out by longitudinal time code reader
 VTCR: Vertical interval time code readout value
 TCG: Value generated by time code generator
 LUBR: Value read out by longitudinal time code user bits
 UBG: Value generated for VITC time code user bits
 VUBR: VITC user bits readout value
 RUBG: Real-time generated value for user bits
 ID: ID preset value for user bits
 ETCG: External time code value
 EUBG: External user bits value

2 Block 2 displays

- 1) Error messages
- 2) VTR operating mode
- 3) JOG/SHTL/VAR/TSO tape speed
- 4) STD/N-STD switch status
 STD: No display
 N-STD: NS display
- 5) Freeze function
 F display
- 6) Wide-size information
 W display

3 Block 3 displays

- 1) Amount of remaining tape (display mode can be set using the front panel DIP SW4-1)
- 2) This block serves as the memo register for scrolling block 4.
 Depending on the subsequent operation step, the data displayed in block 4 is transferred to block 3.

4 Block 4 displays

The input data is displayed in this block.


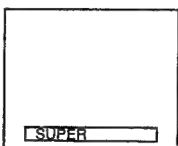
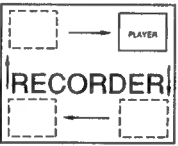
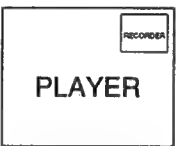
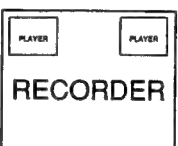
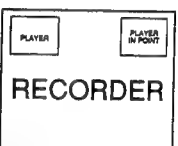
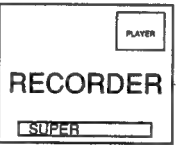

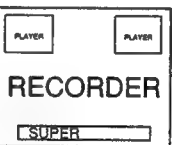
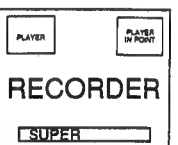
IN: EDIT IN point
 OUT: EDIT OUT point
 AI: AUDIO IN point (for audio split editing)
 AO: AUDIO OUT point (for audio split editing)
 DUR: Length from IN point to OUT point

P IN P Function

This function uses a main picture and sub picture to enable playback signals and input signals to be displayed on the same monitor screen. In the single mode, the main picture and sub picture can be switched, and the linear sound of the main picture is output from MONITOR OUT.

When used in the double mode, the player's IN points can be checked during automatic editing operations using two recorders.

Monitor screen displays

		P IN P mode			
		SINGLE mode (main/sub picture switching possible)		DOUBLE mode (main/sub picture switching impossible)	
Superimposing modes (video output 3)	SUPER (super-imposing only)				
	P IN P (P IN P mode only)	 <p>Picture is moved by SYSTEM SET UP button on B1. SYSTEM CONTROL board.</p>	 <p>The main picture is replaced by the sub picture and vice versa when the PLAYER/RECORDER button is pressed.</p>		 <p>The top right sub picture freezes at the IN entry point when the IN and SET buttons are pressed at the same time.</p>
	P IN P + SUPER (super-imposing and P IN P mode)		 <p>The main picture is replaced by the sub picture and vice versa when the PLAYER/RECORDER button is pressed.</p>		 <p>The top right sub picture freezes at the IN entry point when the IN and SET buttons are pressed at the same time.</p>

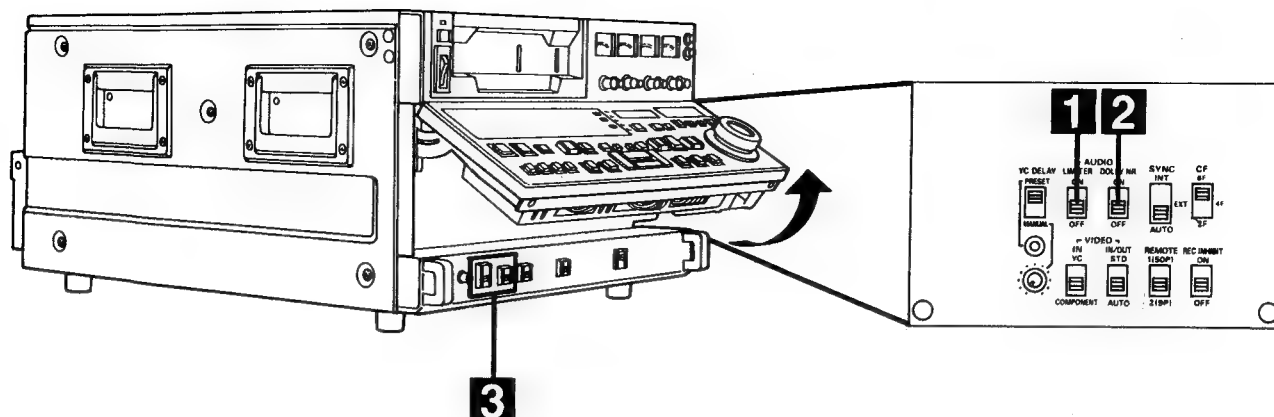
SINGLE mode

- When the power is turned on, the player's picture is monitored at the top right as the sub picture.
- While the PLAYER button is depressed or while the PLAYER lamp has lighted, the player's picture serves as the main picture to replace the recorder's picture. The linear sound is also switched to the player's sound. (The FM sound is not switched.)
- Each time the SYSTEM SET UP button on the B1. SYSTEM CONTROL board is pressed, the display position of the sub picture is moved. (However, the sub picture cannot be moved while the menu screen is displayed.)

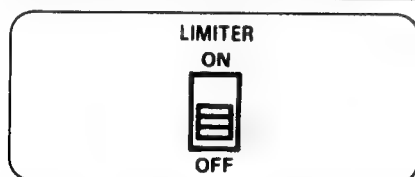
DOUBLE mode

- When the power is turned on, the player's picture is monitored at the top right and top left as sub pictures.
- When the player's IN point is entered (by pressing the IN and SET buttons simultaneously), the sub picture at the top right freezes. When the IN point is reset, it is released.

Audio Settings



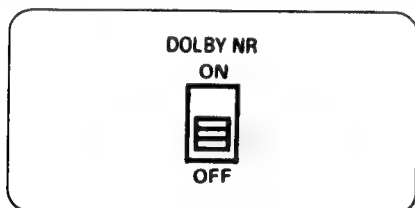
1 Setting the AUDIO LIMITER switch



(This switch works only during linear audio recording.)

- ON:** The automatic volume limiter circuit is activated when the input signal level is excessively high to enable distortion-free sound recording.
- OFF:** The signal is recorded at its original level.

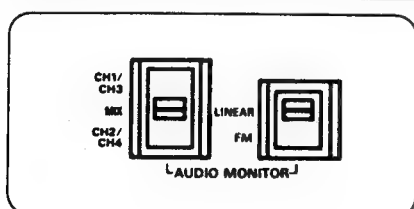
2 Setting the DOLBY NR switch



(This switch works only during linear audio recording or playback.) This is the ON/OFF switch for the Dolby NR System. The effect of different record and playback setting are shown below.

REC \ PLAY	ON		OFF	
	ON	OFF	ON	OFF
ON	Sound is heard with minimal tape hiss.	Treble range is emphasized.		
OFF	Treble range is reduced.	Sound is heard normally.		

3 Setting the AUDIO MONITOR switch

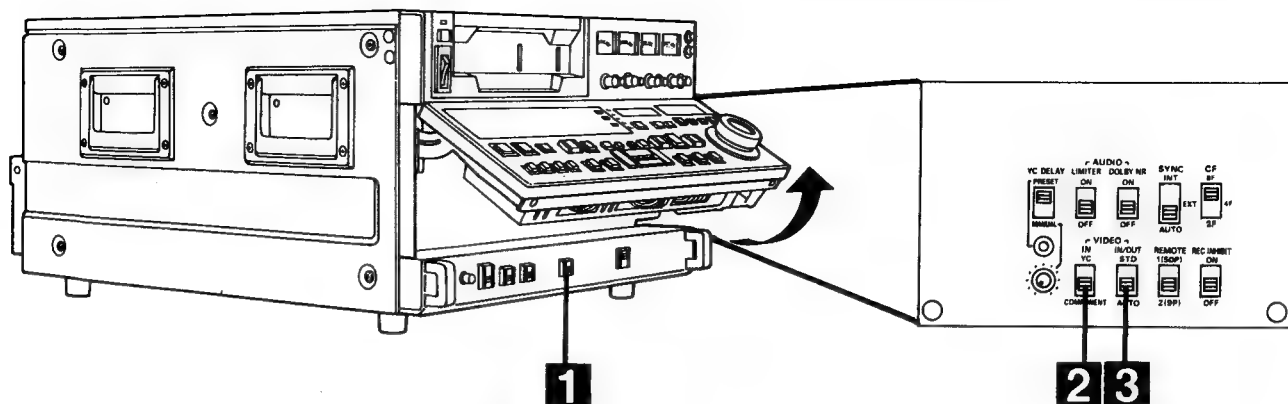


Use speakers or headphones to monitor the sound.

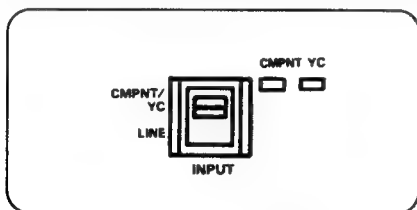
Switch position	CH1/CH3	MIX	CH2/CH4
LINEAR	CH1	CH1 and CH2	CH2
FM	CH3	CH3 and CH4	CH4

- Mixed sound can be monitored when the AUDIO MONITOR MIX OUT connector is used.
- Stereo sound can be monitored when the AUDIO MONITOR switch is in the MIX position.

Video Settings



1 Setting the INPUT switch



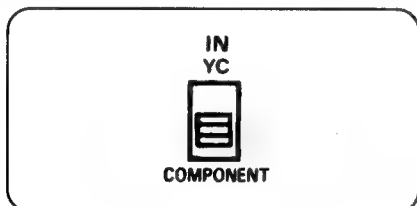
(Setting for recording)

This switch is used to select the input signal.

LINE: Records the composite signal which is input to the rear panel LINE IN connector.

CMPNT/YC: Records the signal which is input to the rear panel COMPONENT/YC connector.

2 Setting the VIDEO IN switch



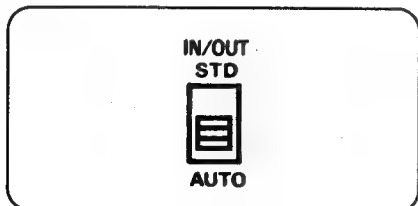
(Setting for recording)

This switch is used to select the COMPONENT input signal.

YC: Records the signal which is input to the rear panel YC connector.

COMPONENT: Records the signal which is input to the rear panel COMPONENT connector.

3 Setting the VIDEO IN/OUT switch



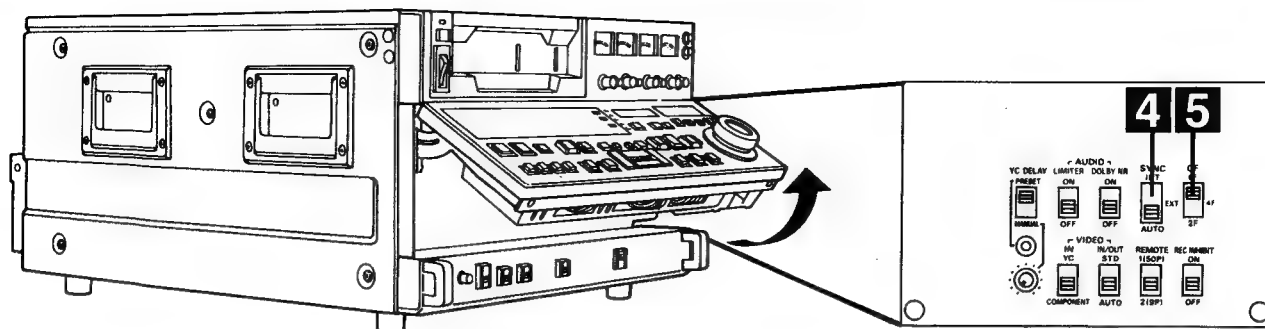
(Setting for recording)

This switch is set depending on the type of signal which is input to the LINE input connector.

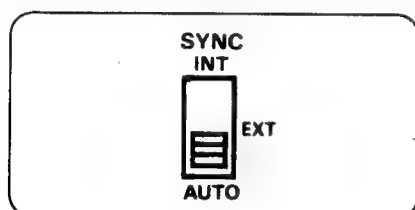
STD: When supplying a standard composite signal which has passed through the TBC, set the switch to this position for adding the VISC even when the input signal SCH is outside the $\pm 70^\circ$ range.

AUTO: Set to this position to automatically identify whether the signal is a standard composite signal which has passed through the TBC or a signal which has not passed through the TBC (VHS, etc.).

When a signal which has passed through the TBC is input, VISC is not added if the input signal SCH is outside the $\pm 70^\circ$ range.



4 Setting the SYNC switch



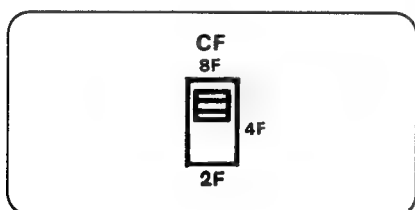
This selects the servo reference signal. (Normally it is kept at the AUTO position.)

INT: The servo is synchronized with the internal reference signal during normal playback.

EXT: The servo is synchronized with the external reference signal (but with the internal reference signal when the external reference signal is not input).

AUTO: The servo is synchronized with the input video signal during recording and editing, and with the external reference signal during playback when such a signal is supplied or with the internal reference signal when such a signal is not supplied.

5 Setting the CF switch



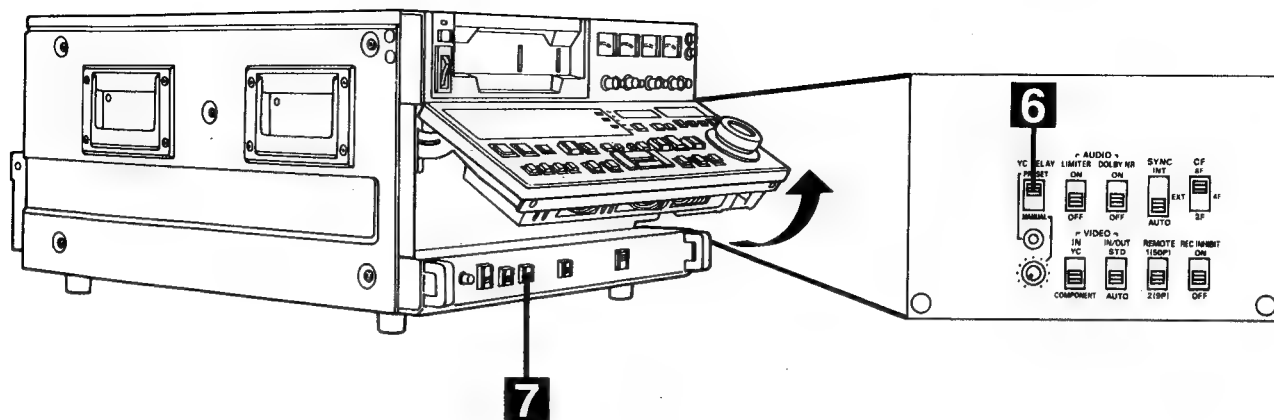
8F: To record, playback and edit in 8-field mode. Even when playback and stop operations are repeated, the shift (H-shift) in the output video phase is kept at all times. (This position is selected for AB roll editing, etc.)

4F: To record, playback and edit in 4-field mode. Playback is controlled for the optimum video frequency response. There are times when the maximum shift in the output video phase is 113ns.

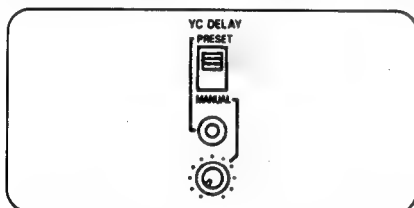
(This position is selected for speedy editing with the optimum pictures.)

2F: To record, playback and edit in 2-field mode. Colour framing is prohibited so that there is no output video phase shift during playback.

Video Settings (cont.)



6 Setting the YC DELAY switch



This is used to adjust the time difference between the Y (luminance) and C (chrominance) signals. (Normally it is kept in the PRESET position.)

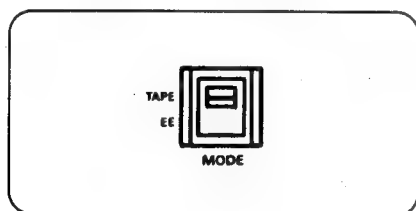
PRESET:

The YC timing is set to the preset status.

MANUAL:

In this position, the YC timing can be adjusted using the YC DELAY control when the timing is incorrect.

7 Setting the MODE switch



(Setting for playback)

This selects the picture which is output to the monitor. It also selects the sound simultaneously.

MODE SW	STOP	Record/Edit	Playback/ search	EJECT
TAPE	Still picture	EE	Playback picture	NOTE —
EE	EE	EE	Playback picture	EE

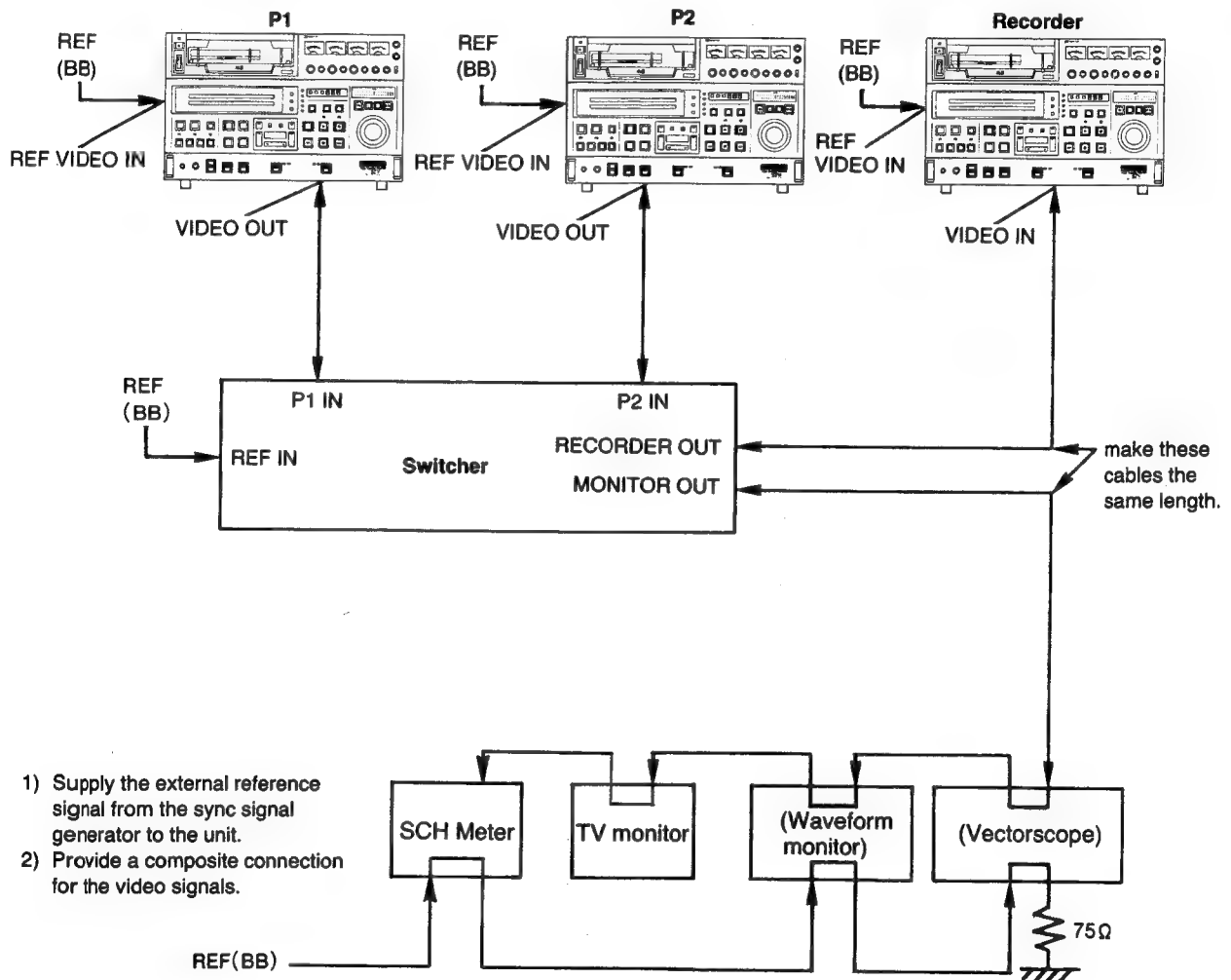
NOTE

- The EE mode is established when the front panel DIP SW4-7 is ON.

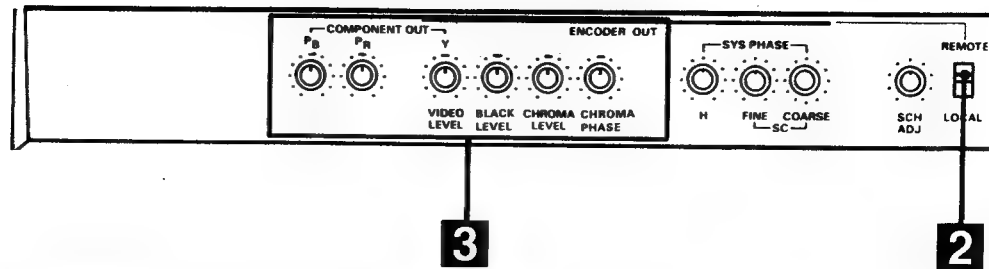
ENCODER OUT adjustments

After the system connections have been made, the ENCODER OUT controls must be adjusted when conducting AB roll editing (editing involving the use of 2 source machines) using an editor so as to ensure error-free and accurate editing. (These adjustments must also be repeated each time a connecting cable is replaced or a connection is changed.)

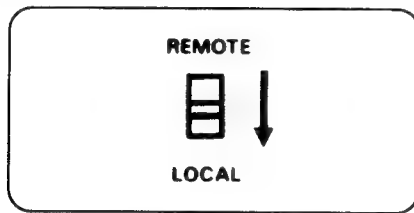
1 Connect the equipment as shown below.



ENCODER OUT adjustments (cont.)



2 Set the REMOTE/LOCAL switch to LOCAL.

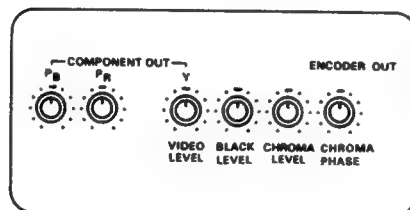


- Set to REMOTE when operating the internal encoder from an external unit.

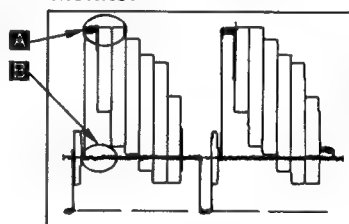
3 Proceed with the discrete adjustments.

When the video level, chroma level and chroma phase shift out of alignment, colour shift occurs at the recorder. These levels are adjusted separately using the controls on each playback machine.

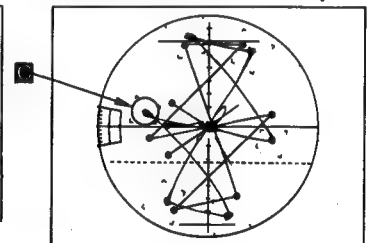
- 1) Play back a cassette on which standard colour bars have been recorded.
- 2) Adjust the controls to produce the waveforms shown in the figures below on the waveform monitor and vectorscope.



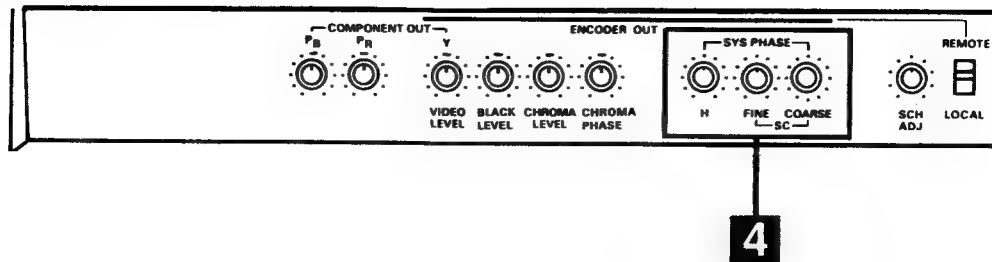
Waveform on waveform monitor



Waveform on vectorscope

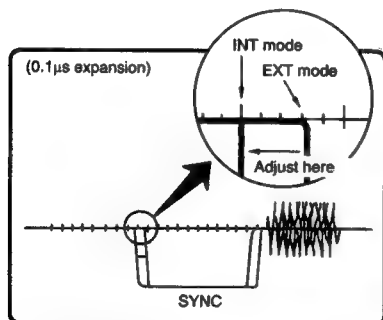
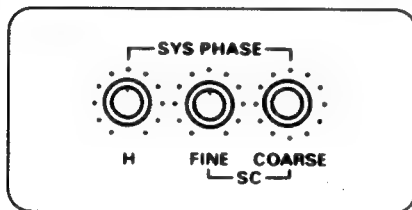


- A Video level**
Adjust this to 700 mV.
- B Black level**
Adjust this control to eliminate any deviation.
- C Chroma level/chroma phase**
Adjust these two controls so that the vector waveform traces are positioned at the grid mark.



4 Adjust the SYSTEM PHASE controls.

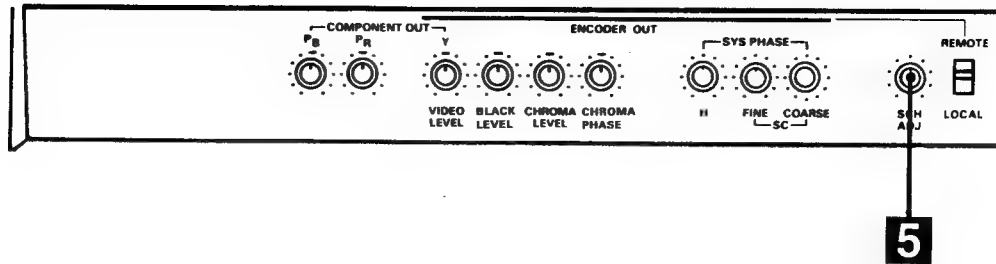
- 1) Play back the standard colour bars on VTR P1.
- 2) Adjust the SYS PHASE controls on VTR P1.



Waveform on WFM
(Pay attention to the sync signal rise.)

- 1) Set the WFM to the INT mode and set the expansion to 0.1 μs.
- 2) Check the horizontal sync position.
- 3) Now set the WFM to the EXT mode.
- 4) In the EXT mode adjust the SYS PHASE controls (H, SC FINE, SC COARSE) so that the H SYNC signal is aligned with the position above.
- 5) Adjust the SYS PHASE controls on VTR P2 similarly.

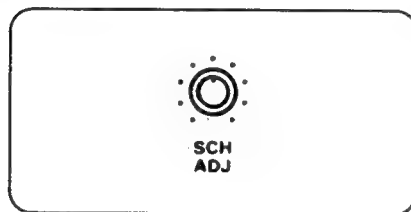
ENCODER OUT adjustments (cont.)



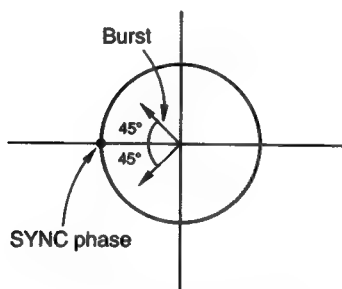
5 Adjust the SCH PHASE control.

- 1) Play back the standard colour bars on VTR P1.
- 2) Adjust the SCH PHASE control on VTR P1.

Adjust the SCH meter as shown below.

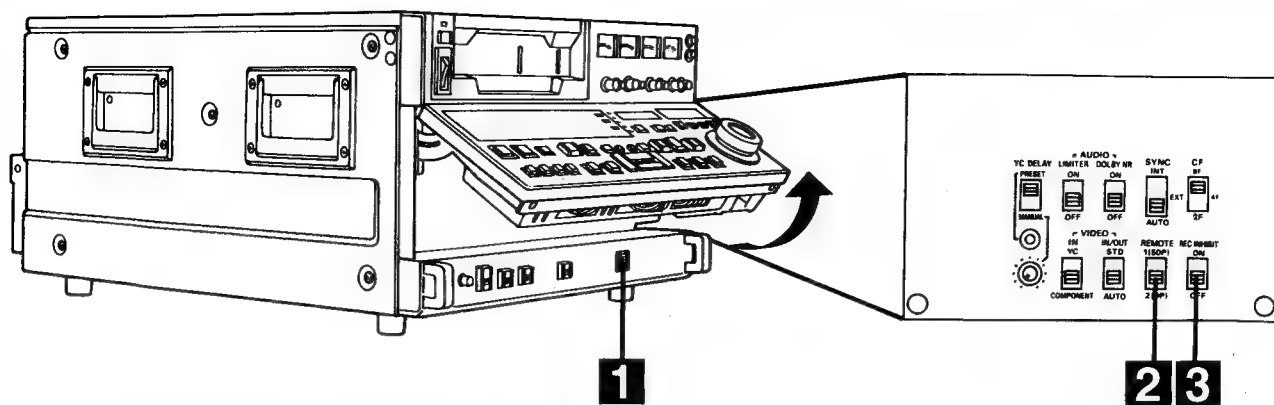


- 1) Set the SCH meter in the INT mode and also the SCH mode.
- 2) Adjust the SCH ADJ control so that the phase difference between SYNC and burst is 0.
- 3) Adjust SCH ADJ of P2 VTR in manner described above.

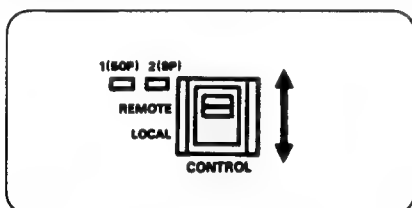


Waveform on SCH meter

Other adjustments



1 Setting the CONTROL switch



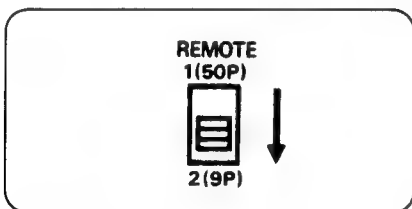
(Remote control setting)

When the remote control connection has been made, this switch is used to decide whether the VTR is to control or be controlled.

REMOTE: For operating this VTR by remote control from another device (in which case the controls on this VTR no longer have any effect).

LOCAL: For operating another device by remote control or operating this VTR on its own.

2 Setting the REMOTE switch



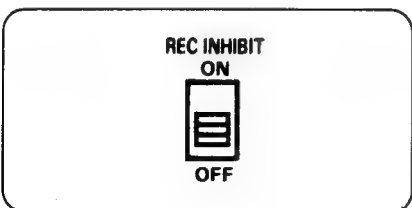
(Remote control setting)

When the remote control connection has been made, this switch is used to select either the REMOTE 2 (9P serial) or an optional REMOTE1 (50P parallel) facility.

1 (50): Set here when using an optional REMOTE 1 (50P parallel).

2 (9P): Set here when using REMOTE 2 (9P serial).

3 Setting the REC INHIBIT switch



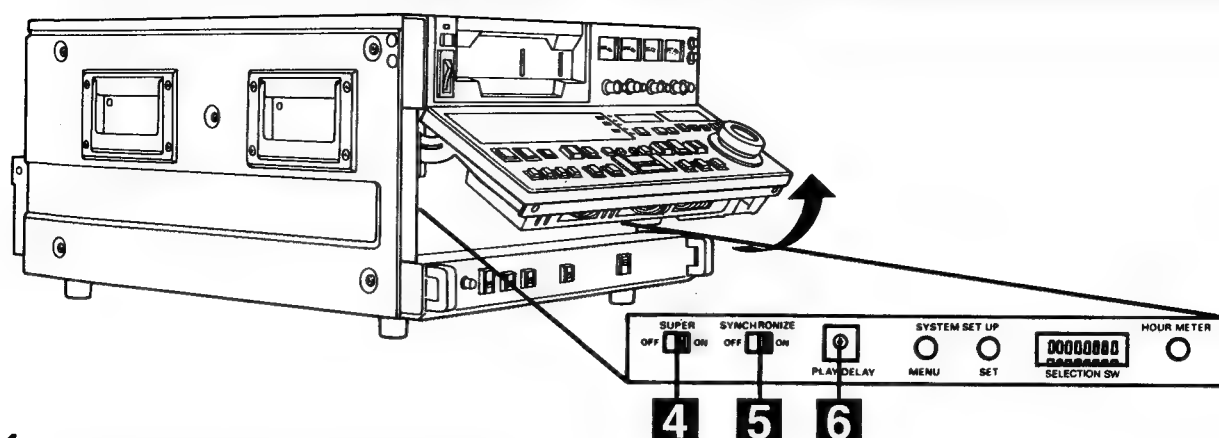
(Setting for recording)

This switch is used to inhibit recording operations.

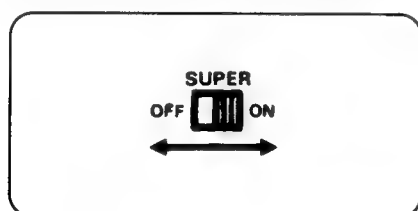
ON: The REC INHIBIT lamp lights and recording operations are no longer possible.

OFF: Recording can be performed.

Other adjustments (cont.)



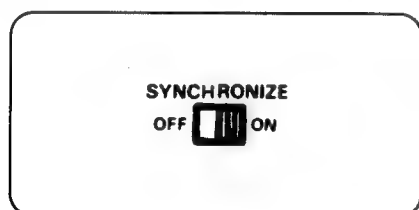
4 Setting the SUPER switch



This switch adds the superimpose function to the video signals which are output from the rear panel VIDEO 3 OUT connector.

ON: Superimpose function is added.
OFF: Superimpose function is not added.

5 Setting the SYNCHRONIZE switch



(Setting for editing)

This switch selects the synchronization mode for the editing system. (Normally it is kept at ON.)

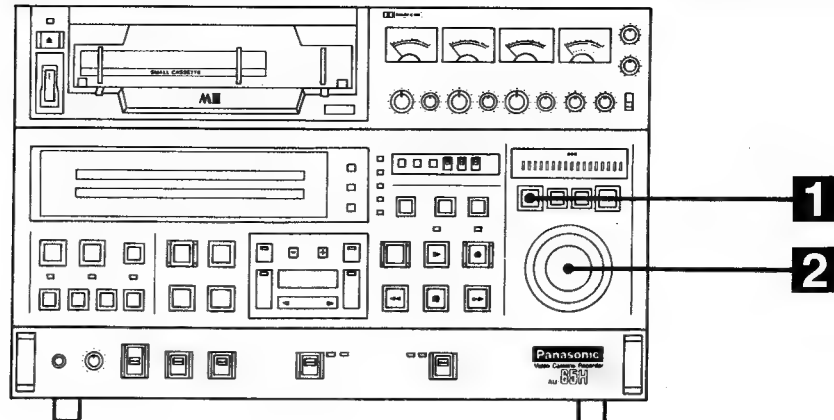
ON: When the player is controlled, synchronization is provided in an editing system where this unit serves as the recorder.
OFF: No synchronization

6 Setting the PLAY DELAY switch

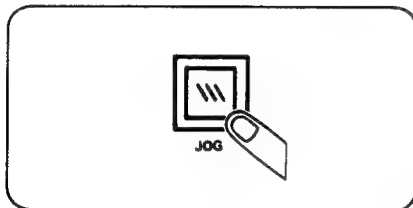


When a PLAY command is received, this adjusts the time elapsing from the stop mode to the commencement of play in frame units. Adjustment is possible from 0 to -15 frames. (Normally it is kept at 0.)

JOG Mode

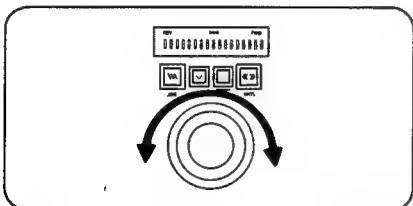


1 Press the JOG button.

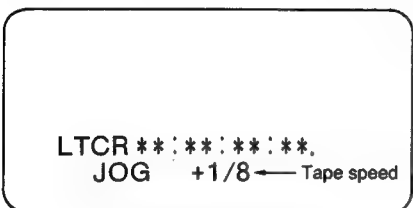


The JOG button lamp lights and the unit is placed in the jog mode.

2 Turn the search dial.



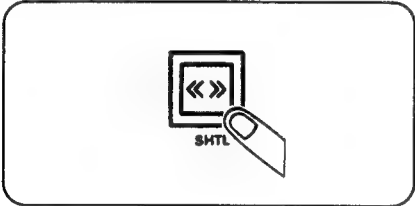
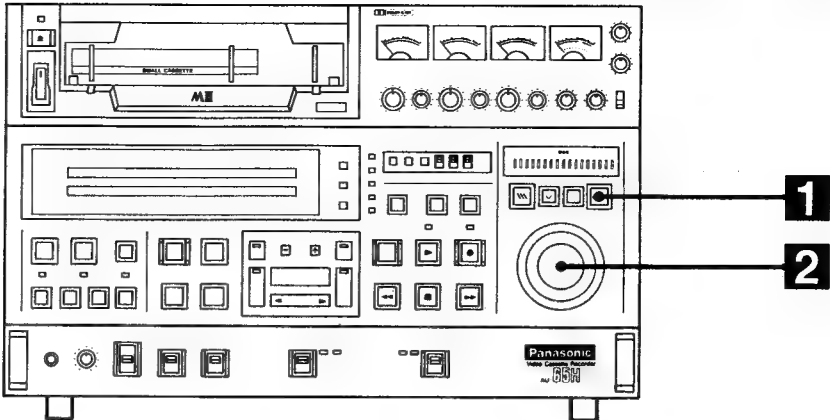
The tape speed can be varied by the speed with which the dial is turned. When it is turned quickly, the speed is increased; when it is turned slowly, the speed is reduced. When the dial stops rotating, the still picture (STILL) mode is established.



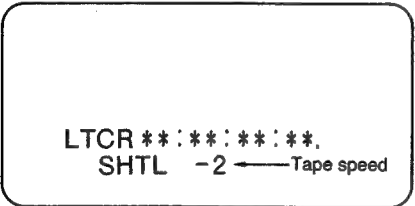
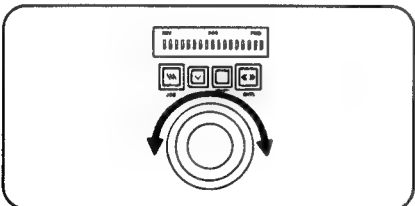
Superimpose display

- The tape protection mode is established once the still mode time set by the dial function has elapsed. (There are 2 tape protection modes: ready off mode and tape tension release mode. They are selected using dial menu function No.1002.)
- The tape speed in the jog mode is displayed in 14 steps ranging from $-1\times$ to $+2\times$ normal tape speed.

Table 1. *Continued*



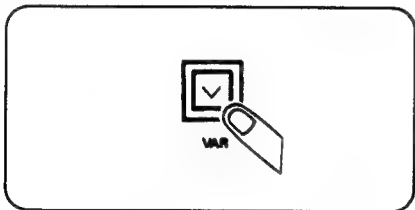
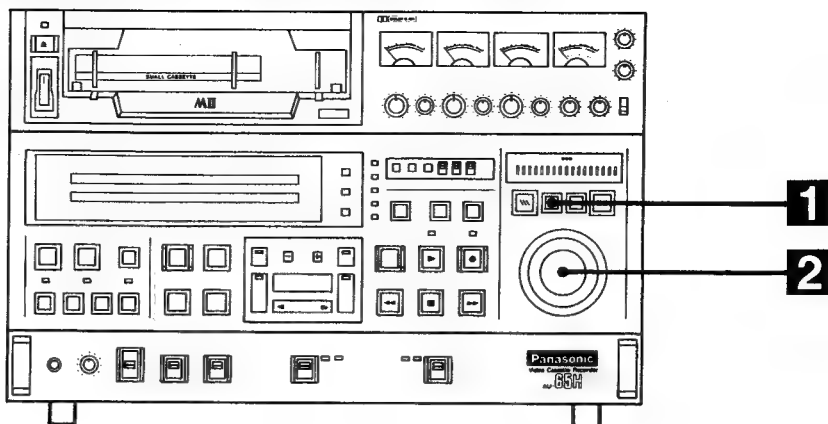
The SHTL button lamp lights and the unit is placed in the shuttle mode.



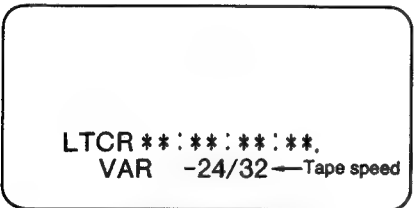
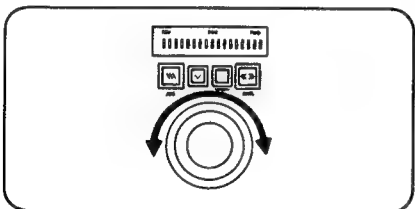
Superimpose display

The tape speed can be varied by the angle at which the dial is turned. The clickstop points are at the STILL and ± 16 (or ± 32) positions.

- The tape protection mode is established once the still mode time set by the dial menu function has elapsed.
(There are 2 tape protection modes: ready off mode and tape tension release mode. They are selected using dial menu function item No.1002.)
- The tape speed in the shuttle mode is displayed in 21 steps ranging from $-16\times$ ($-32\times$) to $+16\times$ ($+32\times$) normal tape speed.
- The value in parentheses applies when dial menu function item No.1006 is set to X32 (00).



The VAR button lamp lights and the unit is placed in the variable mode.



Superimpose display

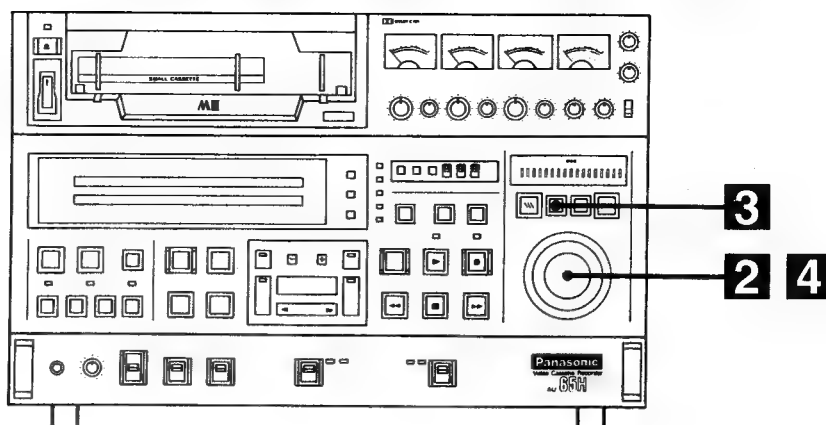
The tape speed can be varied by the angle at which the dial is turned. When the dial stops rotating, the still picture (STILL) mode is established.

The clickstop points are at the STILL, ± 1 and $+2$ positions.

- The tape protection mode is established once the still mode time set by the dial menu function has elapsed. (There are 2 tape protection modes: ready off mode and tape tension release mode. They are selected using dial menu function item No.1002.)
- The tape speed in the variable mode is displayed in 57 steps ranging from $-1\times$ to $+2\times$ normal tape speed.
- When the VAR button is pressed again in the VAR mode, the tape speed is set to $1\times$ the speed in the VAR mode.
- Be sure that AU-65H has not an automatic tracking mechanism, therefore an noise appears on the screen.

1. Set VAR/P-PLY SELECT (Setup Menu No. 1005) to "P-PLY". (See page E-78.)
2. While pressing the VAR button, rotate the search dial.
The playback speed can be varied in 0.1 % steps over a range of $\pm 20\%$ of the normal playback speed in the playback mode.
3. Press the VAR and PLAY buttons simultaneously. Programme play will start.
To change the tape speed once again during programme play, repeat step 2.
4. To cancel this mode, press the PLAY button.
The VTR will return to the normal play mode.

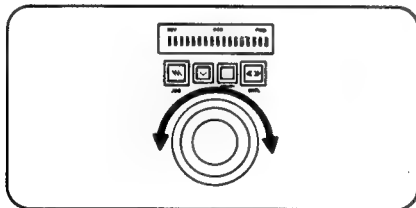
Preset Variable Mode



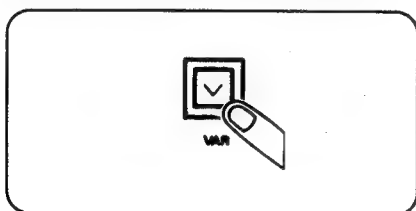
- 1 Change the set-up using the dial menu function.

Set SHTL DIAL MODE SELECT (item No.1004) to PRESET VAR (setting No.01). (See page E-78)

- 2 Turn the search dial and set it to the desired tape speed.

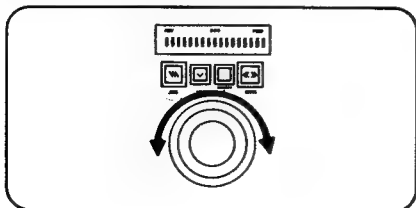


- 3 Press the VAR button.



Playback now starts at the set tape speed.

- 4 Turn the search dial to release the mode.



The normal variable mode is established.

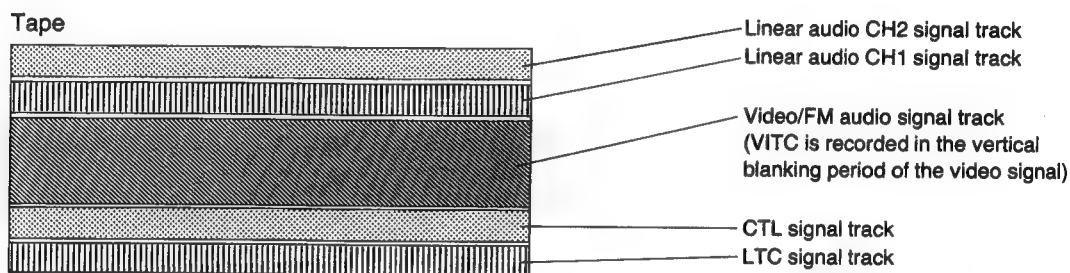
Time Code/User Bits

Time code

The “time code”, based on the time code signal which is generated by the time code signal generator, recorded on tape, and read out by the time code signal reader, is used to display absolute positions on the tape in units of “hours:minutes:seconds:frames”. Knowing an absolute position makes it possible to carry out editing and search operations speedily and accurately.

There are two types of time codes: LTC (longitudinal time code) and VITC (vertical interval time code). The LTC is recorded on a special channel on tape, and it is a bi-phase mark signal with 80 bits per frame. It contains information regarding position on the tape and 32-bit user bits information.

The VITC is recorded in the vertical blanking period of the video signals. It is a 90-bit signal consisting of information regarding position on the tape and 32-bit user bits information, and the same information is recorded every 2H per field. It is used during slow playback at tape speeds of 1/8x or less.



The time code itself is indicated on the display and superimposed on the TV monitor.

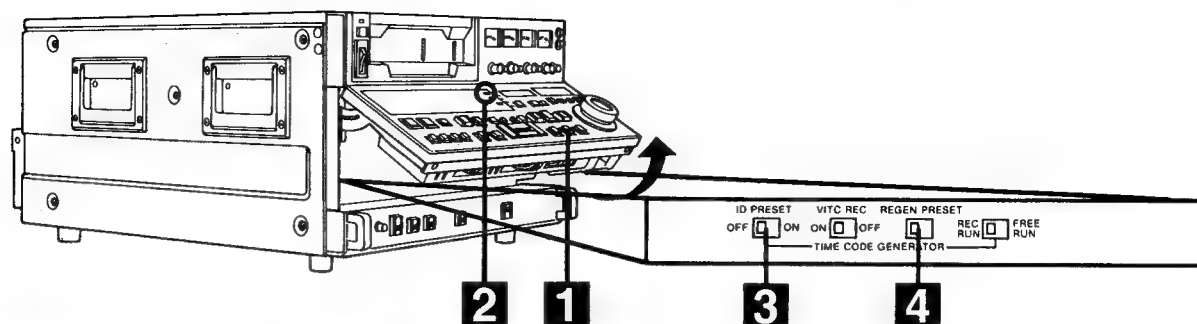
L	T	C	R	00	:	07	:	04	:	24
Time code mode				Hours		Minutes		Seconds		Frames

User bits

Among the time code signals, the “user bits” is a 32-bit information frame released to the user. It can be used to record the operator number or real-time values.

A total of 16 characters—numbers 0 to 9, A, B, C, D, E and F—can be used for the user bits. Only numbers 0 to 9 are used for real-time values.

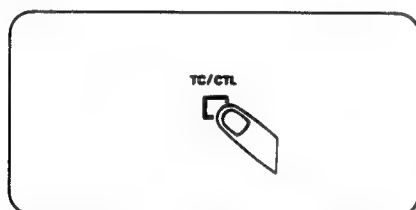
Internal Time Code/User Bits Recording



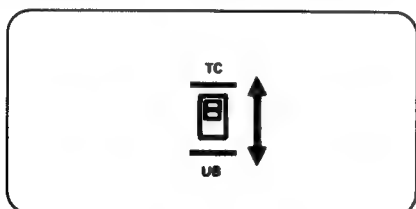
1 Set the VTR to the stop mode.

(See page E-25)

2 Set the TC/CTL button to TC.



3 Set the TC/UB switch to the desired position.

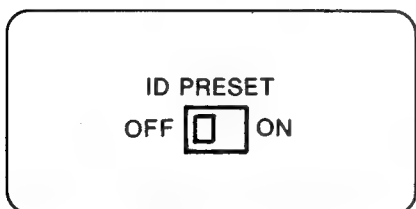


TC: For setting the time code.
UB: For setting the user bits.

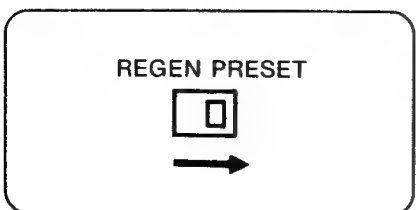
To set both TC and UB, first set UB and then TC.

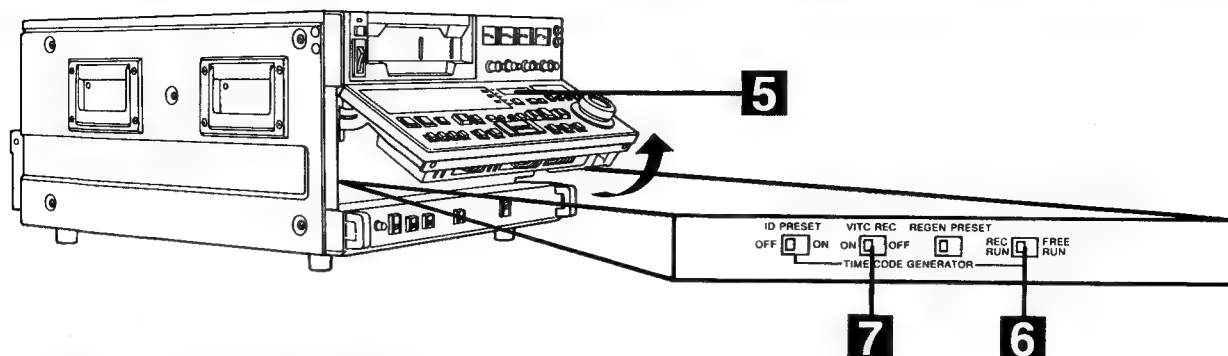
When setting UB

- Item No.6007 and 6008 on the set-up menu must be set. (See page E-84)
- The ID PRESET switch must be set. Normally it is kept at OFF. Set it to ON when setting the ID code. (See page E-17)

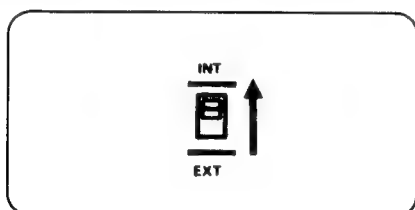


4 Set the REGEN/PRESET switch to PRESET.

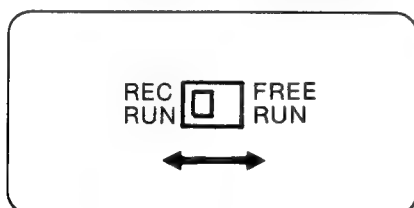




5 Set the EXT/INT switch to INT.



6 Set the REC RUN/FREE RUN switch to the desired position.

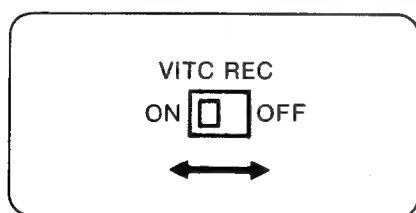


(Setting for the time code setting only)

REC RUN: Time code runs only during VTR recording.

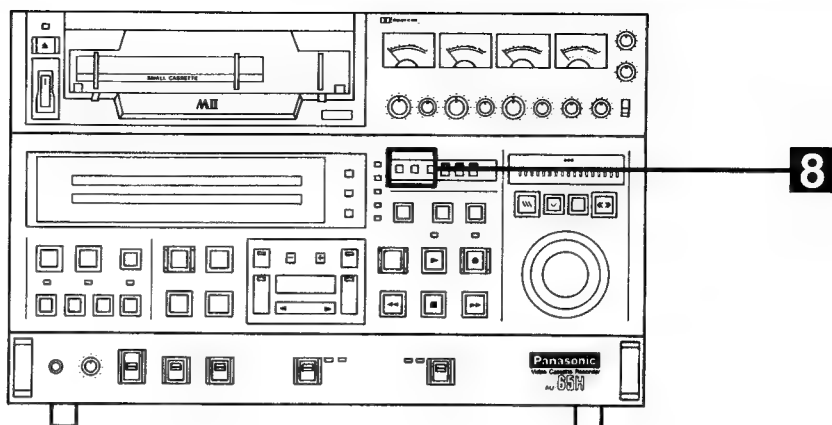
FREE RUN: Time code runs in real time, regardless of the operating mode of the VTR.

7 Set the VITC REC switch to the desired position.



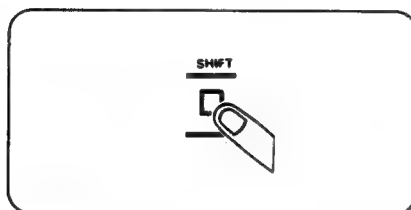
ON: Records the new VITC value onto tape.
OFF: The new VITC value is not recorded.

Internal Time Code/User Bits Recording (cont.)



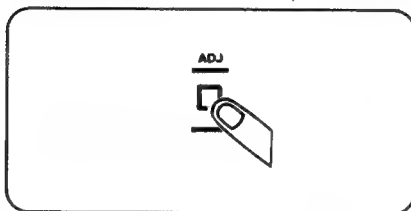
8 Set the initial values of the time code/user bits.

- 1) Press the SHIFT button.



An underline appears below the number.

- 2) Change the number by pressing the ADJ button.



The number changes each time the button is pressed. The setting range is given below.

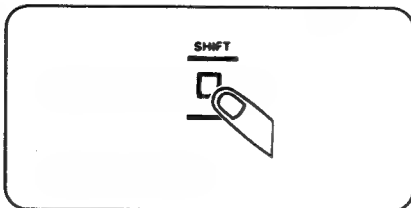
Time code (real-time user bits):

00:00:00:00–23:59:59:24

User bits

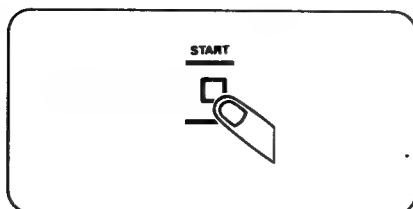
00:00:00:00–FF:FF:FF:FF

- 3) Move to the next item.

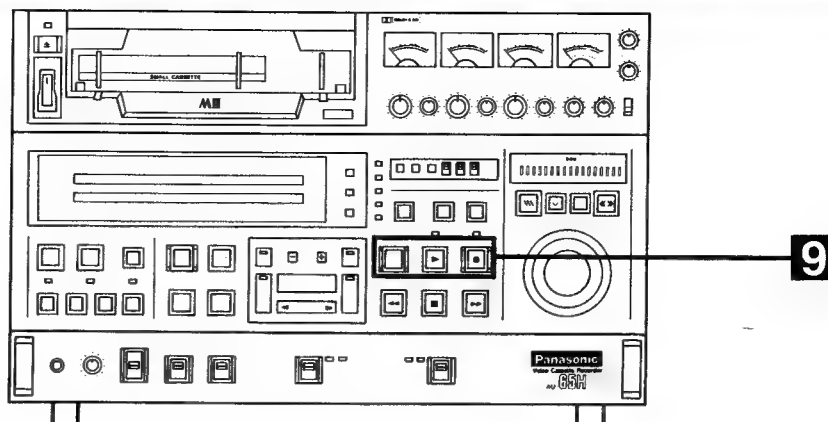


When the SHIFT button is pressed, the position where the underline is displayed moves. Set the items to the desired values.

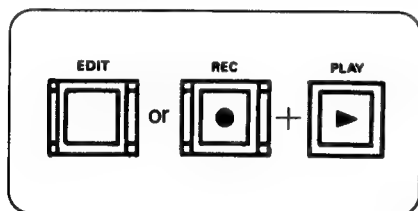
- 4) Press the START button upon completion of the settings.



• The time code starts running in the FREE RUN mode.



9 Proceed with the recording or editing.

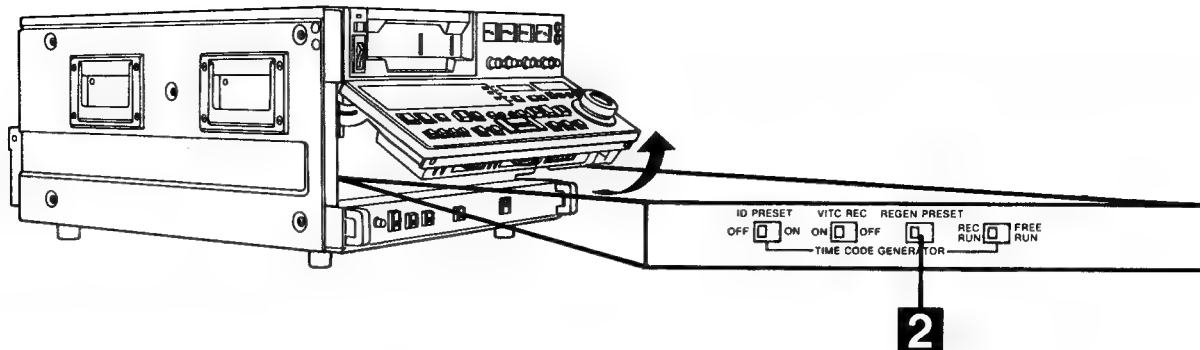


(For recording, see page E-28; for editing, see page E-32)
The time code recording commences.

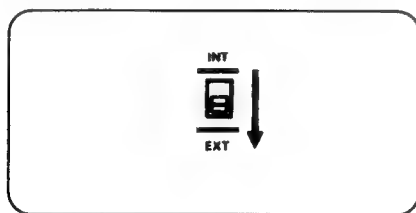
NOTE:

- To record both the time code and user bits, first set the TC/UB switch to UB in step 3 and set the initial value for the user bits in step 8, and then set the TC/UB switch to TC and set the initial value of the time code in step 8.

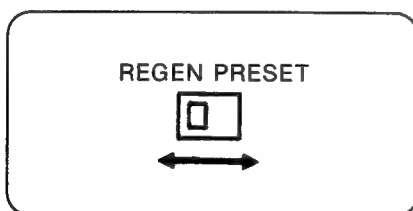
External Time Code/User Bits Recording



1 Set the EXT/INT switch to EXT.



2 Set the REGEN/PRESET switch to the desired position.

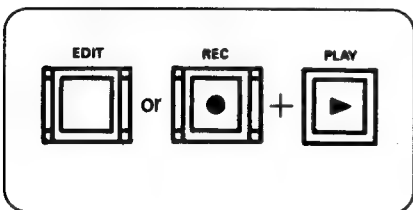


REGEN: For recording with the internal time code generator synchronized to the external time code.

PRESET: The time code/user bits input to the rear panel TIME CODE IN connector is recorded in its original form.

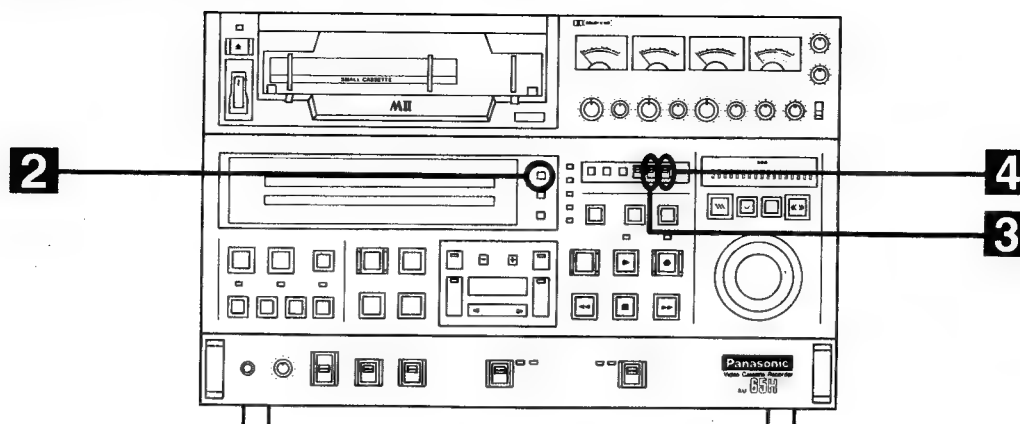
•For REGEN, the object (TC or UB) to be synchronized is selected by set-up menu item No.6003 (TCG REGEN MODE).

3 Proceed with the recording or editing.



(For recording, see page E-28; for editing, see page E-32)
The time code/user bits is recorded.

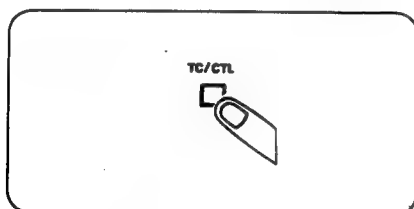
TIME CODE/USER BITS PLAYBACK



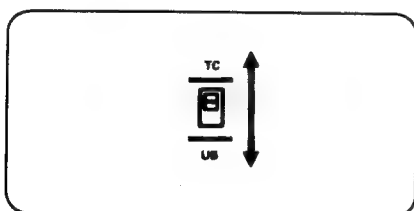
1 Set the VTR to the stop mode.

(See page E-25)

2 Set the TC/CTL button to TC.

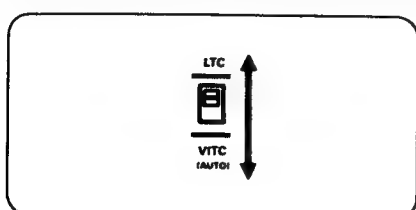


3 Set the TC/UB switch to the desired position.



TC: Time code is displayed.
UB: User bits is displayed.

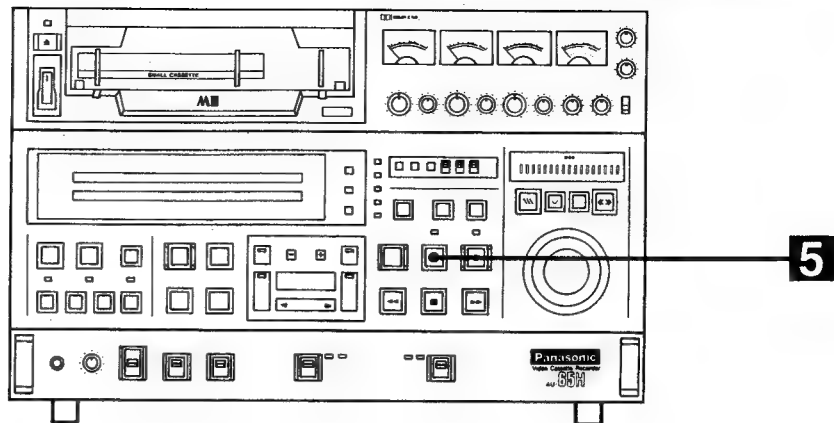
4 Set the LTC/VITC (AUTO) switch to the desired position.



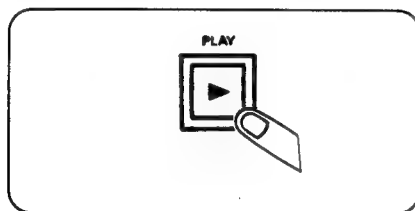
LTC: For LTC readout.
VITC (AUTO): For VITC readout. LTC is read out if it is not possible to read out VITC.

• If the time code cannot be read at either position, interpolation is provided by the CTL signal.

TIME CODE/USER BITS PLAYBACK (cont.)



5 Press the PLAY button.



Playback commences and the time code appears on the display. When the SUPER switch is ON, the time code value is superimposed onto the video signal supplied from the VIDEO 3 OUT signal. (See next page)

The following appears on the display.

• In VITC mode

00 : 01 : 04 : 07

↑
Lights: Even number field

00 : 01 : 04 : 07

↑
Off: Odd number field

NOTE:

- Interpolation is provided automatically by the CTL signal when the time code signal is momentarily absent or when the tape is traveling at a low speed.

The following appears on the display.

00 : 01 : 04 : 07

↑
Period between seconds and frames is cleared.

- During playback, the time code recorded on tape will be output from the TIME CODE OUT connector.

Superimpose Screen

When the SUPER switch on the B1.SYSTEM CONTROL board in the unit is set to ON, the superimpose signal is added to the signal which is output from the VIDEO OUT3 connector.

- Superimpose displays are not possible in the set-up menu mode.



Block 1

The time code mode is indicated in this block by the abbreviations listed below.

CTL: Control signal

TCG: Time code generator value

UBG: User bits generator value

RUBG: Real-time generated value for user bits

LTCR: LTC time code playback value

VTCT: VITC time code playback value

LUBR: LTC user bits playback value

VUBR: VITC user bits playback value

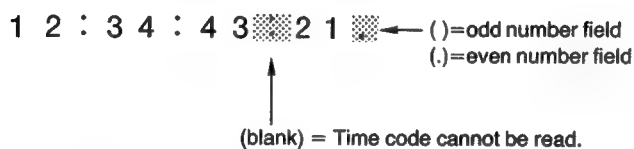
ID: ID preset value

ETCG: External time code value

EUBG: External user bits value

Block 2

The time code is indicated in hours, minutes, seconds and frames (fields) as below.



Block 3

This displays the VTR operating modes as below.

EJECT (eject)

PLAY (playback)

REC (recording)

STOP (stop)

FF (fast forward)

REW (rewind)

EDIT (manual edit)

EPLY (edit play)

JOG (jog)

SHTL (shuttle)

VAR (variable)

VMEM1 (variable memory playback storage prerolling)

■ VMEM1 (variable memory playback storing)

VMEMr (variable memory playback prerolling)

■ VMEMr (variable memory playback)

VM-P (variable memory preview prerolling)

■ VM-P (variable memory preview storing)

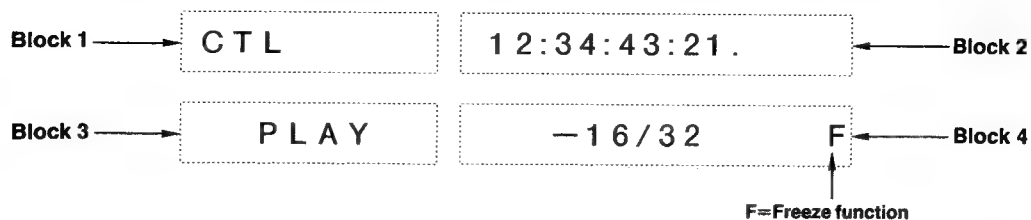
VM-E (variable memory edit prerolling)

■ VM-E (variable memory editing)

F-SP (variable memory edit initial speed setting)

TSO (tape speed override)

Superimpose Screen (cont.)



Blocks 3/4

This displays the VTR operating modes as below.

READY-OFF (ready mode release)
 T.RELEASE (tape tension release)
 PREVIEW (preview)
 OUT PREVIEW (OUT point preview)
 AUTO EDIT (automatic editing)
 PREROLL (preroll)

REVIEW (review)
 IN CUE-UP (IN point cue-up)
 OUT CUE-UP (OUT point cue-up)
 AI CUE-UP (audio IN point cue-up)
 AO CUE-UP (audio OUT point cue-up)
 CUE-UP (cue-up)

Block 4

This displays the search speed.

- 1 6 / 3 2 ← Tape speed (in this case, search in reverse direction at 16/32 times normal playback speed)
 ↑
 +: forward direction
 -: reverse direction

Hour meter display

The display changes as follows when the HOUR METER button on the B1.SYSTEM board is pressed.

HOUR METER

POWER ON XXXXXHOURS ⇔ Total power ON time
 DRUM ON XXXXXHOURS ⇔ Head drum rotating time

Loading count display

This display changes as follows when the HOUR METER button is pressed while the SET button on the B1.SYSTEM board is held down.

LOADING COUNTER ⇔ Total loading count
 0 0 0 0 0

NOTE

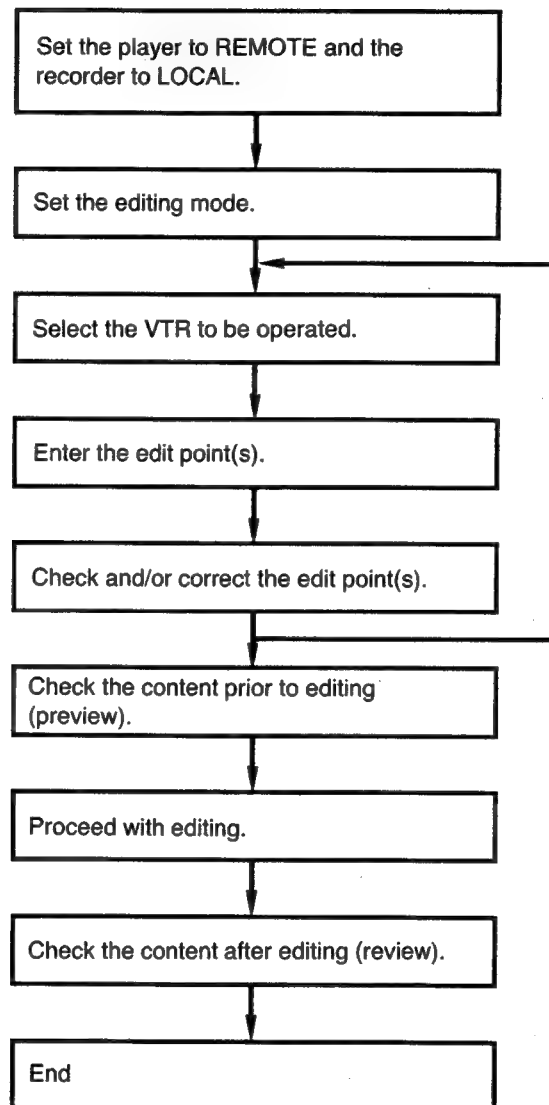
- Blocks 3 and 4 are displayed when the dial menu function (item No.2004) is ON.

REFERENCE

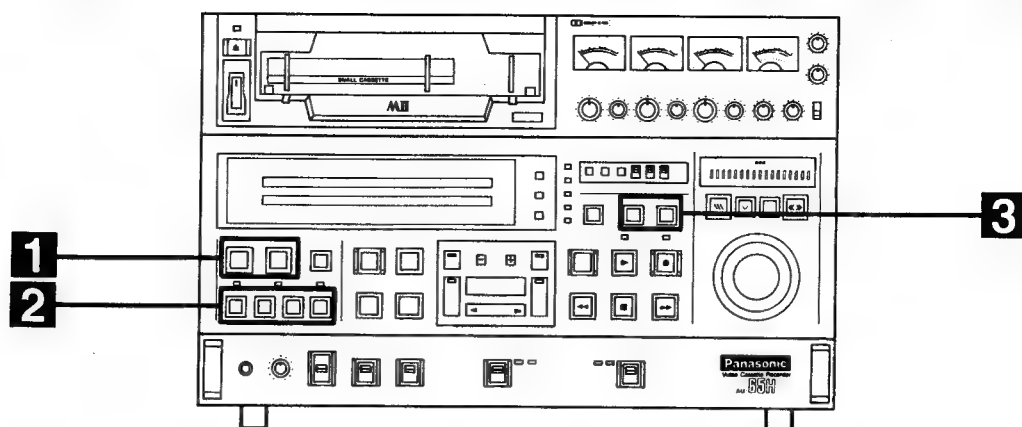
- The superimpose display characters can be changed using the dial menu function (item No.2001).
- The superimpose display position can be shifted using the dial menu function (item No.2002, 2003).

Before Proceeding With Editing

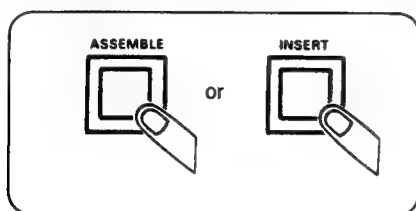
"Editing" consists of taking pre-recorded tapes, combining various material into one part or cutting out the parts which are not desired and connecting only what is required into a single programme.
Below is a flow chart of the basic steps taken for editing operations.



Editing Mode Selection

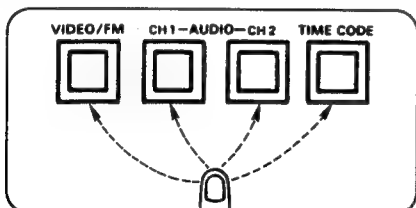


1 Select the editing mode.



ASSEMBLE: Press to establish the assemble editing mode.
INSERT: Press to establish the insert editing mode.

2 Select the editing channel.



When a button is selected, its lamp will light.

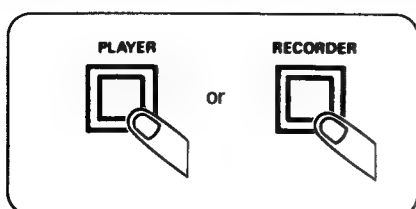
When the ASSEMBLE button is pressed:
 All the lamps will light. Press the buttons corresponding to the channels which are not to be edited to turn off their lamps.
 (The VIDEO/FM button is always lit and so it cannot be turned off.)

When the INSERT button is pressed:
 All the lamps will go off. Press the button corresponding to the channels to be edited to turn on their lamps.

Selection of VTR to be Operated

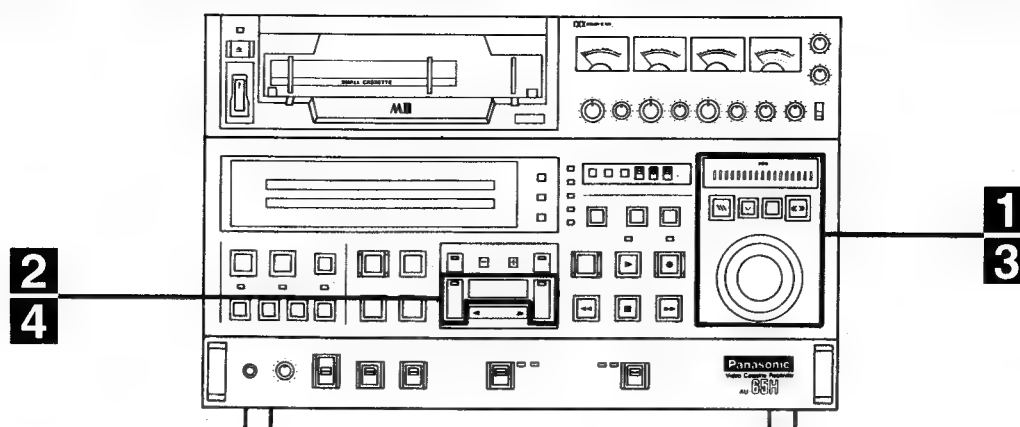
(Setting for editing with 2 VTRs)

3 Press the PLAYER/RECORDER button.

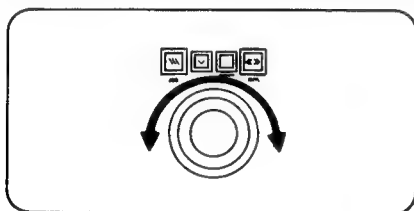


PLAYER: Press this when operating the player VTR to enter edit points.
RECORDER: Press when operating the recorder (this unit) to enter edit points.

Edit Point Entry

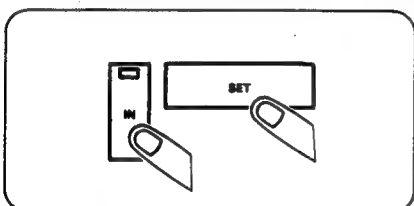


1 Use the search function to locate the edit IN point.



Place the VTR in the still-picture mode at the desired position on the tape. See page E-47 for further details on search operations.

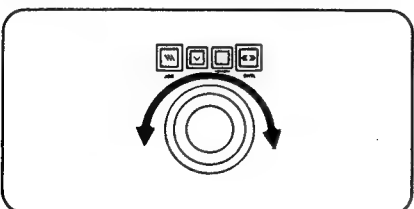
2 Press the IN and SET buttons together.



The edit IN point is now entered.
The value of the IN point is displayed at the bottom right of the display.

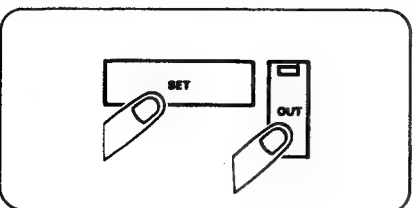
	IN 00:07:04:14

3 Use the search function to locate the edit OUT point.



Place the VTR in the still-picture mode at the desired position on the tape. See page E-47 for further details on search operations.

4 Press the OUT and SET buttons together.



The edit OUT point is now entered.
The value of the OUT point is displayed at the bottom right of the display.

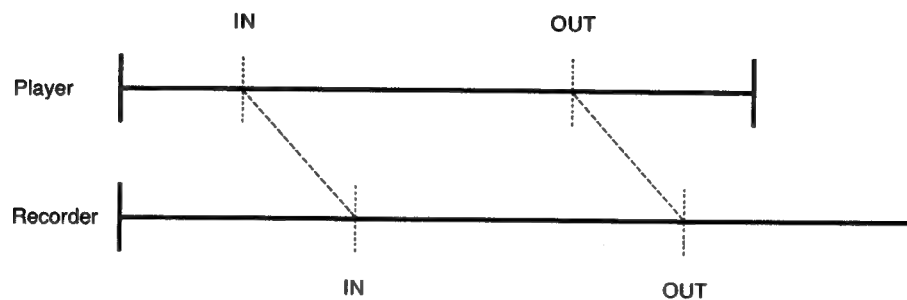
	IN 00:07:04:14
	OUT 00:18:06:18

Edit Point Entry

NOTES:

•Match frame processing function

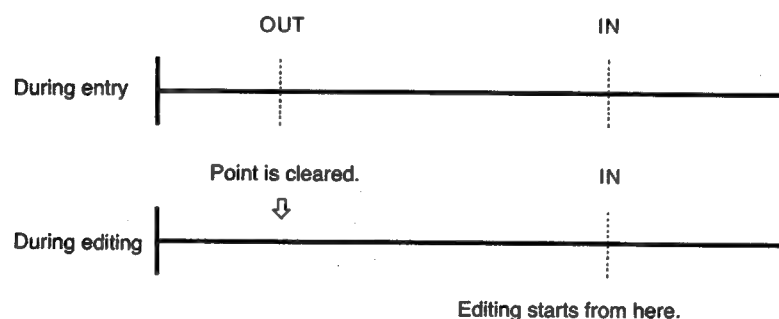
When two VTRs are used for the editing operations, there will be a total of 4 edit points: the IN and OUT points for the player and IN and OUT points for the recorder (see figure below). The last point is calculated automatically so that only the first three need to be entered. (The fourth edit point cannot be entered.)



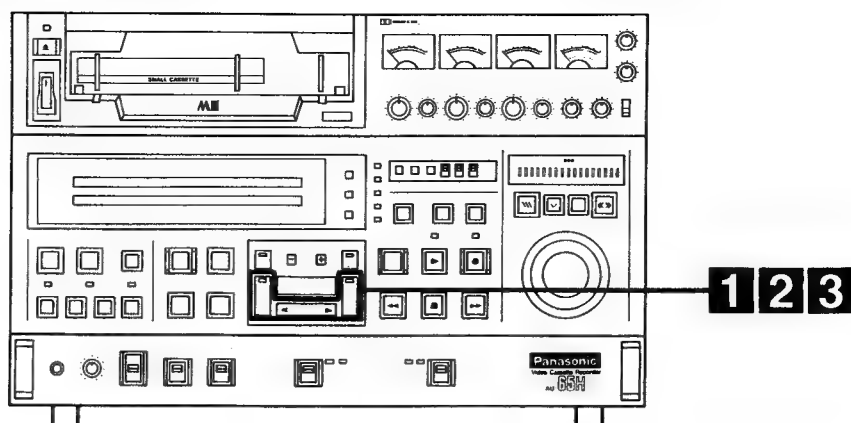
•Negative duration function

If the edit OUT point has been placed in front of the edit IN point during edit point entry, then as soon as the PREVIEW or AUTO EDIT button is pressed, the edit OUT point entry will be cleared and editing will start from the edit IN point. (See figure below)

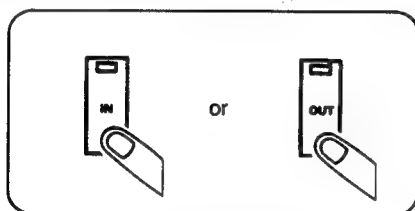
In this case, editing proceeds as if the edit OUT point had not been entered so that the STOP button must now be pressed to complete the editing process.



Edit Point Check

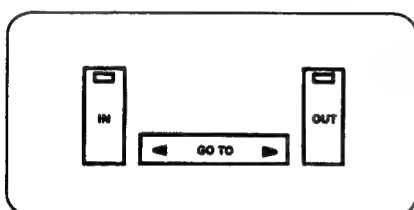


1 Check the edit point data.



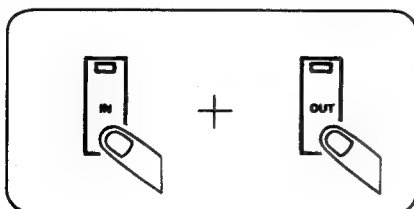
Press the IN (or OUT) button.
The value of the edit point appears on the display.

2 Check the picture at the edit point (GO TO function).

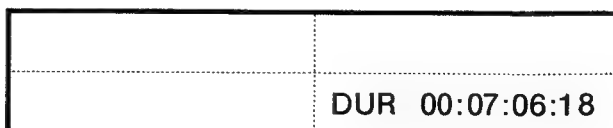


Press the IN or OUT button while holding down the GO TO button.
The tape is now accessed to the edit IN (or OUT) point and the VTR is placed in the still-picture mode.

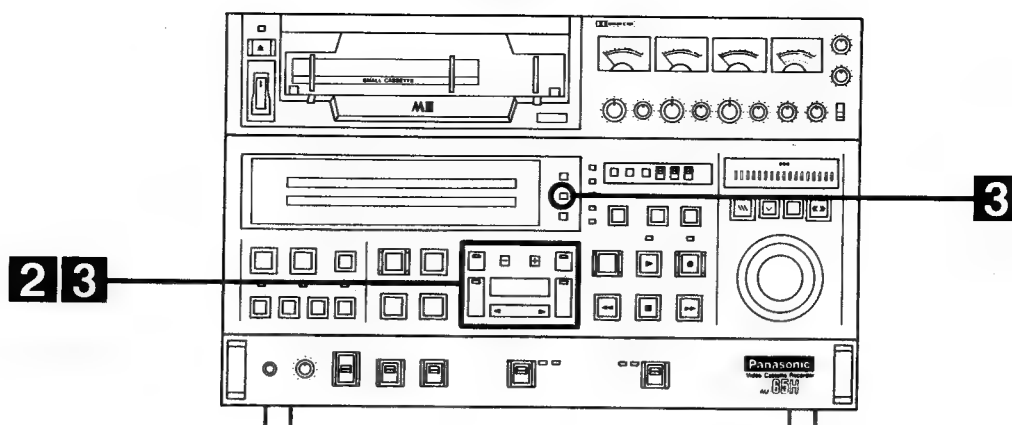
3 Checking the duration



To check the duration (lap time) of the editing section, press the IN and OUT buttons together.
Press the IN and OUT buttons together.
The length (lap time) between the edit IN and OUT points appears on the display.



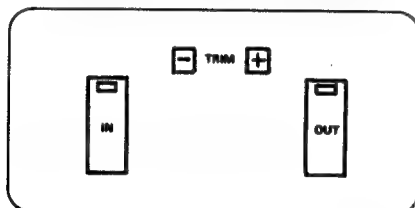
Edit Point Correction



1 Re-enter the edit point.

When a new edit point is re-entered, the old edit point will be replaced by the new one.

2 Correct the edit point in frame units (trim function).

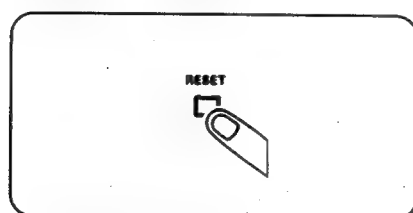


Press the IN (or OUT) and TRIM +/- buttons together.

- Each time the + button is pressed, the edit point will be increased by one frame.
- Each time the - button is pressed, the edit point will be decreased by one frame.

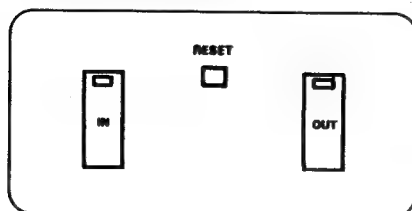
3 Reset the edit point.

1) Press the RESET button (in the CTL mode only).



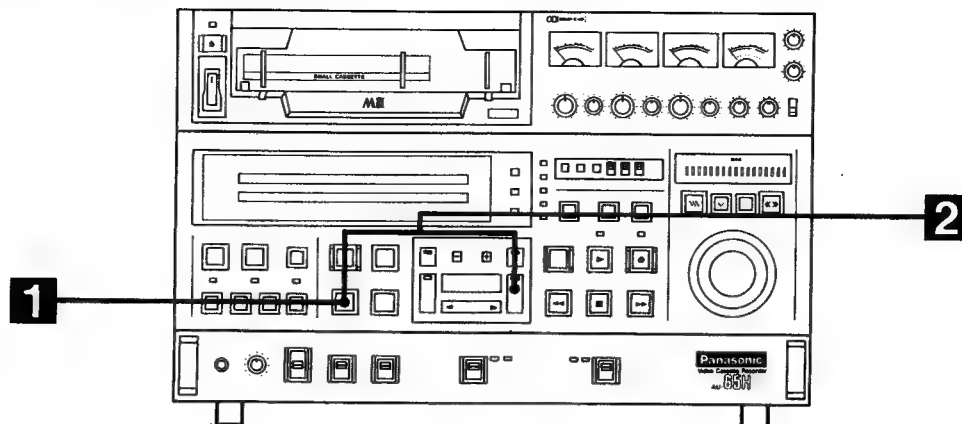
Both the edit IN and OUT points are reset.

2) Press the RESET and IN (or OUT) buttons together.

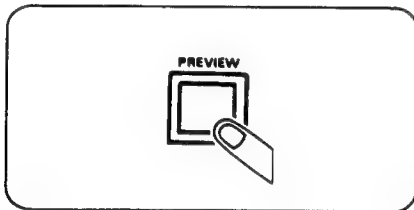


The edit IN (or OUT) point is reset.
Edit OUT point can be reset even during editing.

Preview



1 Normal preview

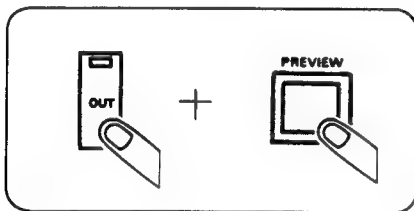


Press the PREVIEW button after edit point entry.

The material on tape is now previewed.

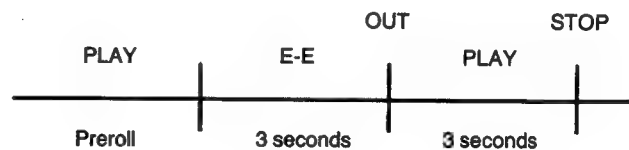
- If the edit IN point has not been entered, the position where the PREVIEW button was pressed will be entered as the edit IN point.
- Press the STOP button to stop the preview at any time.
- When the PREVIEW button is pressed again during preview, preview will commence from the start.
- The VTR is automatically placed in the stop mode when the edit OUT point on the tape is reached.
- "EPLY" appears on the display during preview when the VTR is being controlled by an editing controller.

2 Edit OUT point preview (only for insert editing).

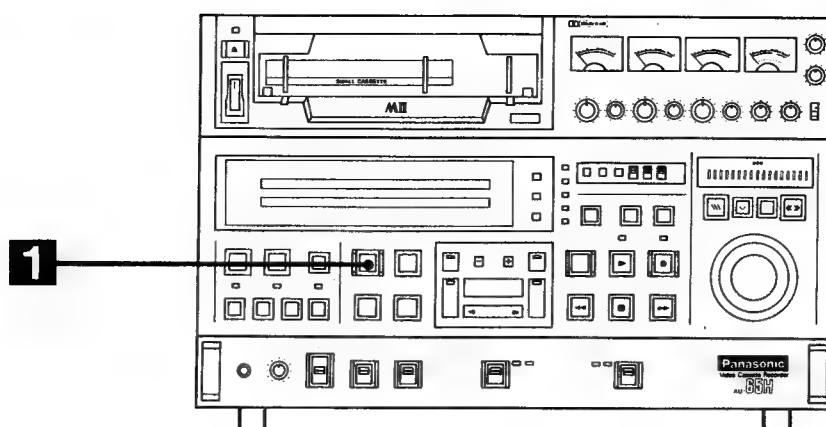


Press the OUT and PREVIEW buttons together.

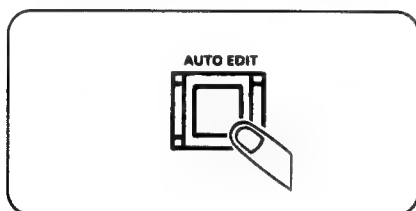
The VTR is placed in the EE mode for 3 seconds prior to the edit OUT point and in the PLAY mode for 3 seconds following the OUT point. (See figure below)



Automatic Editing Execution



1 Press the AUTO EDIT button.



Automatic editing is now executed.

- Press the STOP button to stop the editing at any time.
- The VTR is automatically placed in the stop mode after postroll when the edit OUT point on the tape is reached.

NOTES:

•Postroll

In the case of assemble editing, editing continues for a short period of time even after the edit OUT point has been passed, the tape is rewound to the OUT point, and the VTR is placed in the stop mode.

In the case of insert editing, the VTR is placed in the play mode after the edit OUT point has been passed, the tape is rewound to the OUT point, and the VTR is placed in the stop mode.

•Retry Function

This executes editing again from the start once the AUTO EDIT button is pressed again when editing has been stopped at any point.

•Auto Tag Function

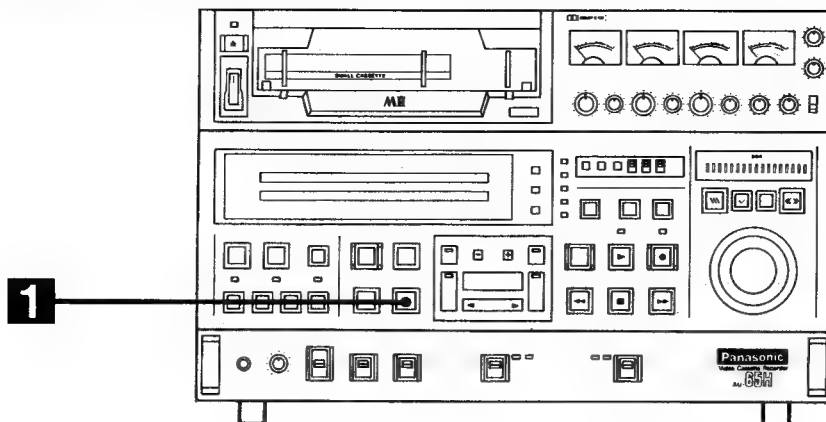
When, upon completion of the editing, the next edit point has not yet been entered and when the AUTO EDIT button is pressed, the previous edit OUT point is entered as the IN point and editing proceeds.

Press the PLAY button in the unit whose tape is running to release the Auto Tag mode.

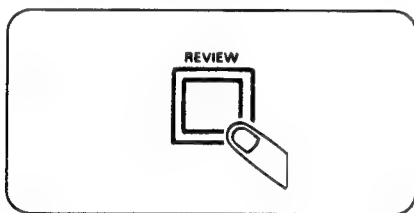
•EE (Electronic to Electronic) Check of Audio/Video Input Signals

If a monitor is connected only to the recorder side and the recorder is changed to the player control mode by pressing the PLAYER button while holding down the REC or EDIT button in the VTR-to-VTR edit, EE of the player's audio/video signals can be checked on the recorder's monitor.

Review



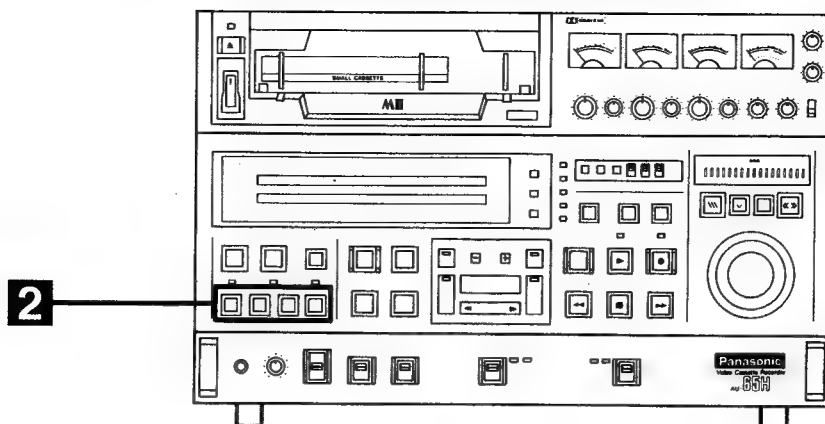
1 Press the REVIEW button upon completion of editing.



The tape material in the recorder is reviewed.

- Press the STOP button to stop the review at any time.
- The VTR is automatically placed in the stop mode after postroll when the edit OUT point on the tape is reached.

Split Editing



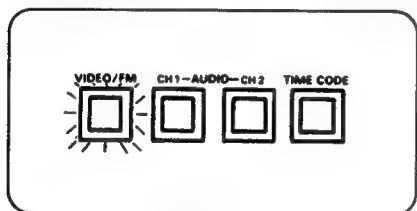
"Split editing" refers to the kind of editing which switches the editing channels during insert editing.

1 Proceed with insert editing.

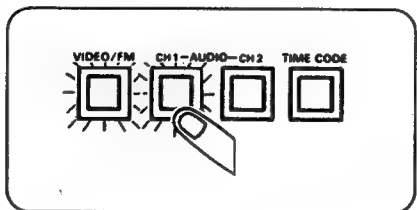
2 Switch the editing channel.

Example of operation method: Sound is added and inserted into AUDIO CH1 during the insert editing of the VIDEO/FM channel

1) While VIDEO/FM channel editing is in progress:

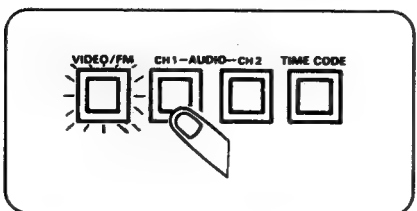


2) Press the AUDIO CH1 button.



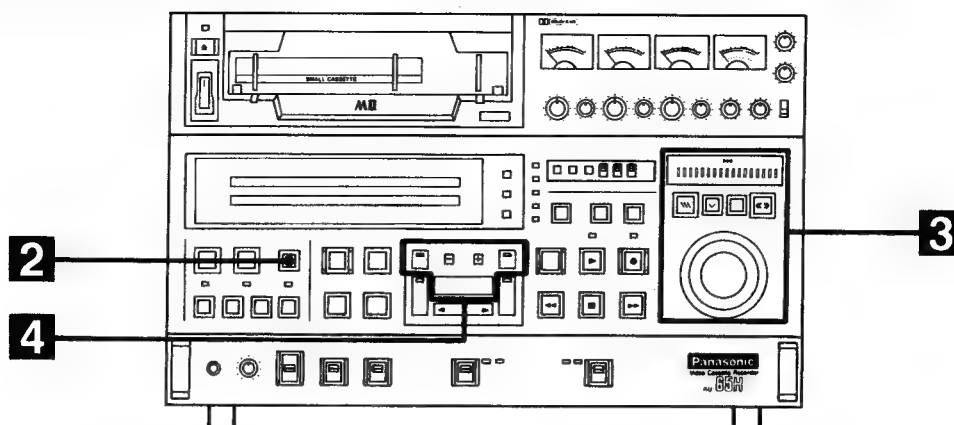
The AUDIO CH1 sound is insert-edited.

3) Press the AUDIO CH1 button again to turn off its lamp.



This completes AUDIO CH1 insert editing.

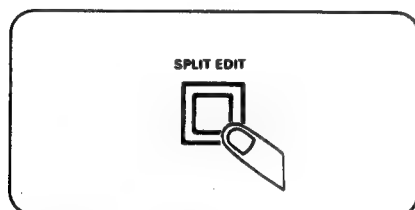
Audio Split Editing



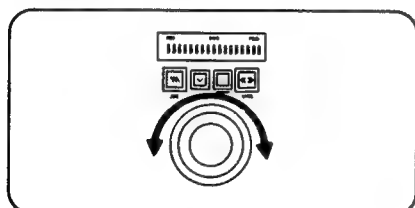
"Audio split editing" refers to entering and editing the audio and video signals separately.

1 Complete the entry of the video edit points. (See page E-63)

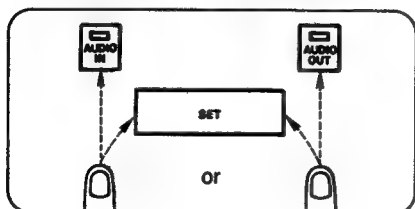
2 Press the SPLIT EDIT button.



3 Find the AUDIO IN (or OUT) point using the search function.



4 Press the SET and AUDIO IN (or OUT) buttons together.



The AUDIO IN (or OUT) point is entered.

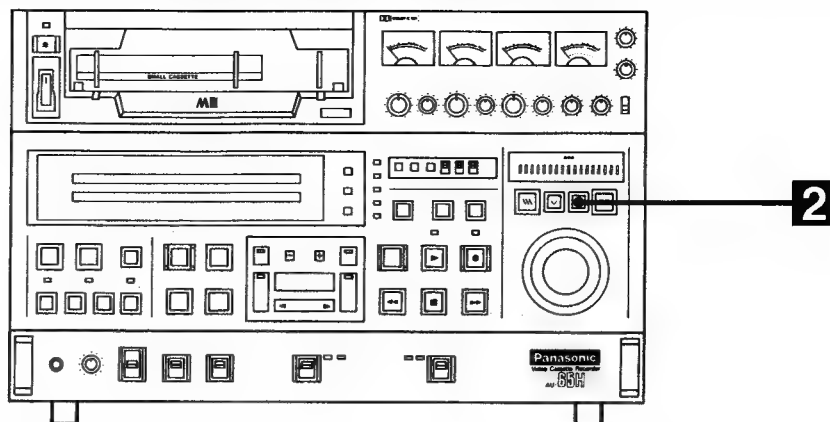
	AI 00:07:06:18

AI: AUDIO IN point
AO: AUDIO OUT point

NOTES:

- Audio split editing is not possible for FM sound.
- Checking, correcting and resetting the AUDIO IN and OUT points can be performed in exactly the same way as with the video edit points. (See pages E-65 and E-66)

Variable Memory Editing



"Variable memory editing" involves controlling the playback speed of the player from the recorder and editing material in the variable speed mode.

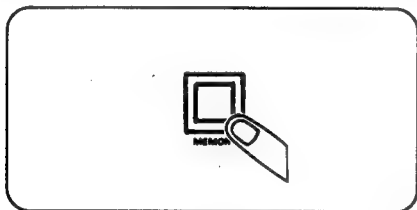
NOTES:

- Variable memory editing cannot be performed unless the player VTR is provided with an auto tracking function.
- Assemble editing and insert editing can be performed; split editing is, however, not possible.

1 Change the set-up using the dial menu function.

Set SHTL DIAL MODE (item No. 1004) to PRESET VAR (setting No.01).

2 Press the VAR MEMORY button.



3 Select the editing mode.

(See page E-62)

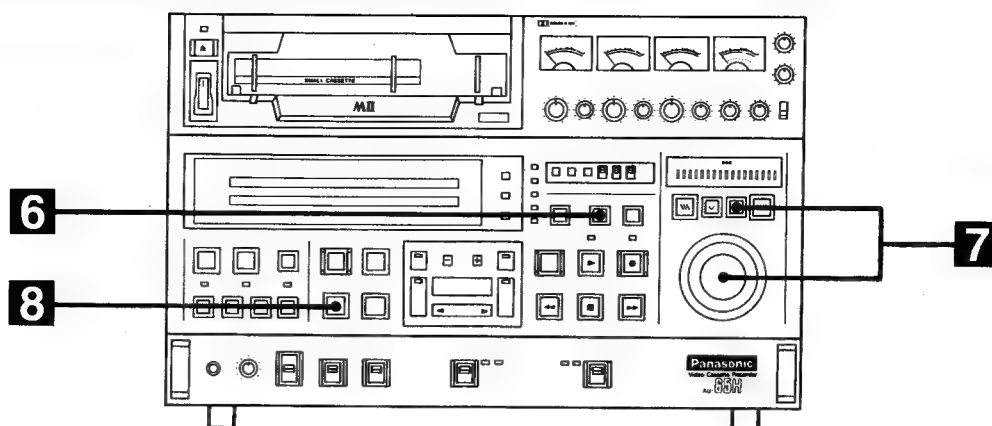
4 Select the VTR to be operated.

(See page E-62)

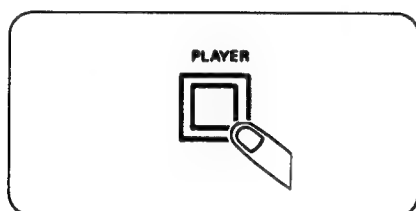
5 Enter the edit points.

(See page E-63)

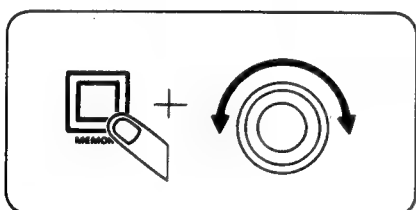
The edit OUT point for the player cannot be entered.



6 Press the **PLAYER** button.



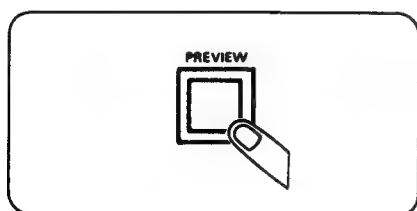
7 Turn the search dial while holding down the **VAR MEMORY** button.



Set the tape speed (initial speed) between the preroll point and edit IN point.
Display

LTCR 00:01:06:14			
F-SP	+24/32	IN	00:01:04:07

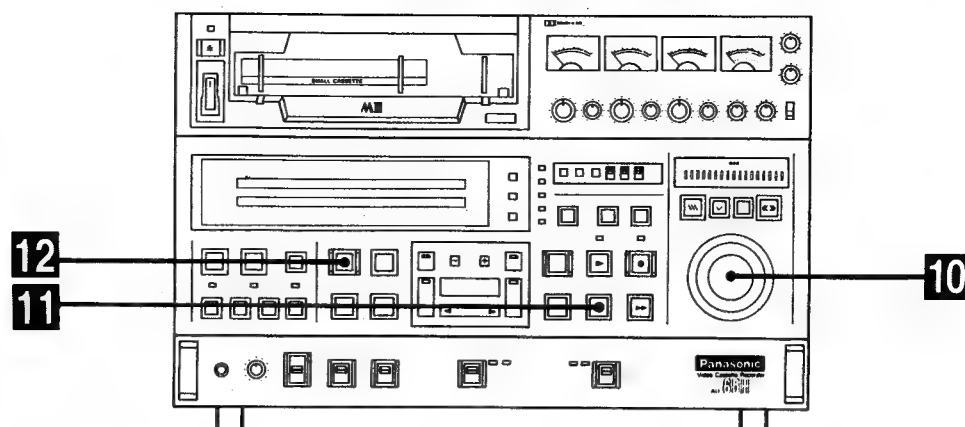
8 Press the **PREVIEW** button.



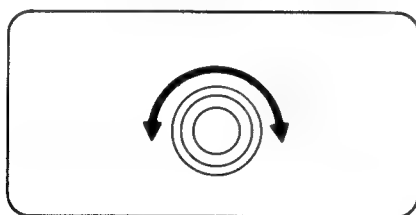
The VAR MEMORY lamp lights. Preview commences in the player at the initial speed and in the recorder at the standard speed.

9 The VTR beeps when the edit IN point is passed.

Variable Memory Editing (cont.)

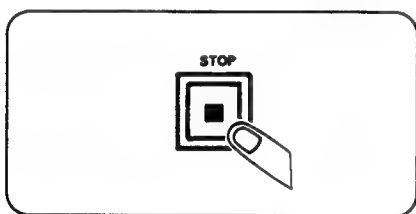


10 Turn the search dial and change the tape speed.



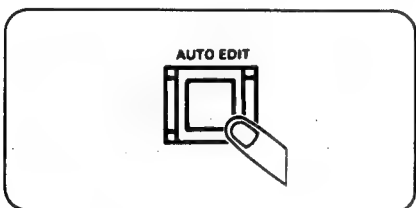
The VAR MEMORY button lamp starts flashing.
The tape speed can be stored in the memory while the VAR MEMORY button lamp is flashing.
The VAR MEMORY button remains lit when the edit OUT point is passed or when the memory is full.

11 Press the STOP button.



The tape stops moving.

12 Press the AUTO EDIT button.

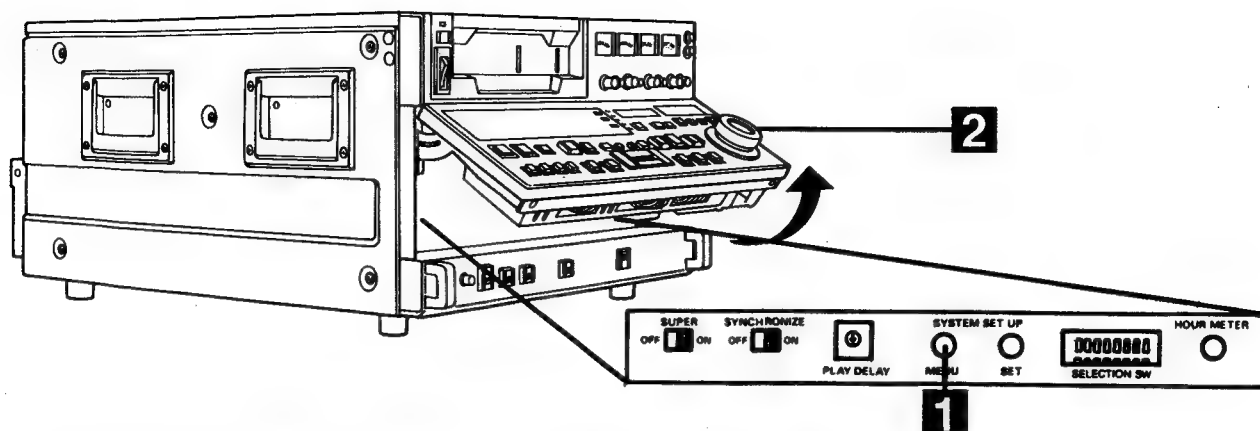


Variable memory editing now commences.
•When editing is completed, the contents in the memory are cleared.

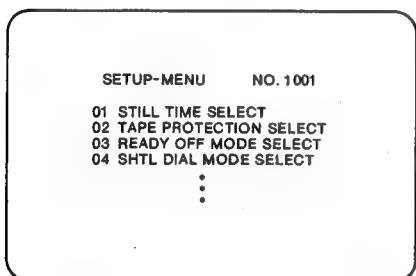
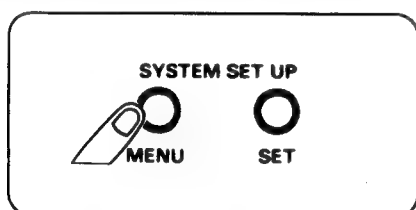
NOTES:

- Press the STOP and VAR MEMORY buttons together to release the variable memory mode.
- Check the edited material using the review function.
- To change the memory contents, repeat steps 6 to 11.
- Bear in mind that variable memory editing proceeds with synchronization.
- Use this unit as the recorder because it does not come with an auto tracking function.

Operation Method of Dial Menu Functions



1 Press the MENU button on the B1. SYSTEM CONTROL board.



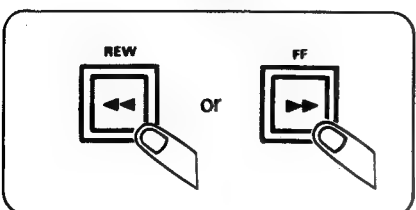
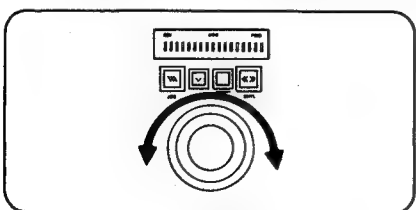
Superimpose display

The picture below appears on the monitor.
(If changes were made previously to the set-up, the screen will show the last such change.)

Display



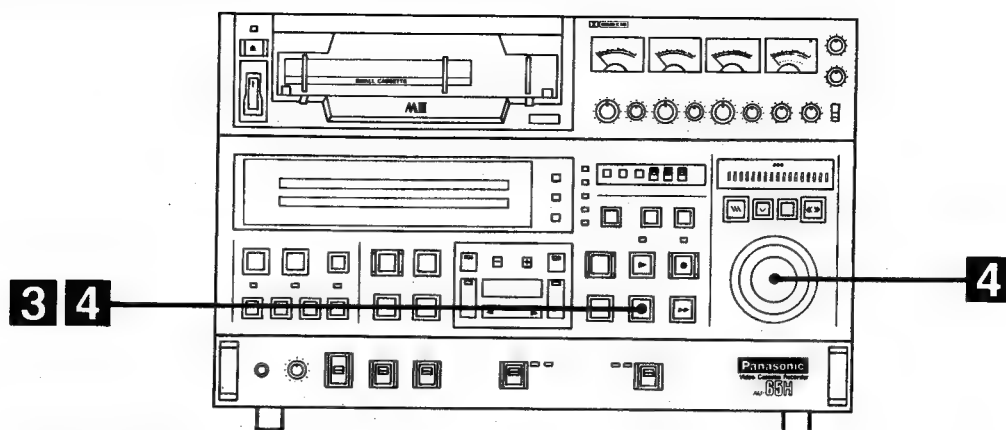
2 Turn the search dial and find the setting item.



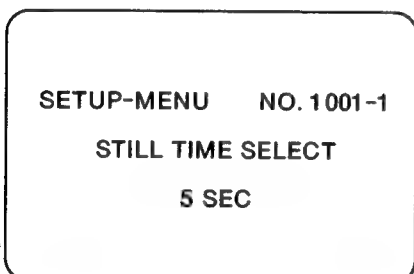
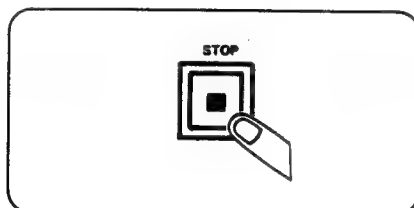
When the dial is rotated clockwise, the setting items are successively incremented (1001→1002→1003, etc.); conversely, when it is rotated counterclockwise, they are decremented.

Press the FF (page up) or REW (page down) button to change the set-up menu in page units.
The set-up menu changes page by page.

Operation Method of Dial Menu Functions (cont.)



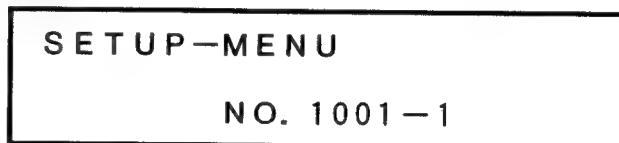
3 Press the STOP button at the desired item.



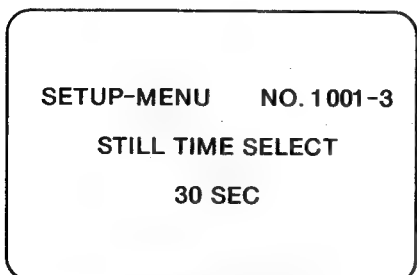
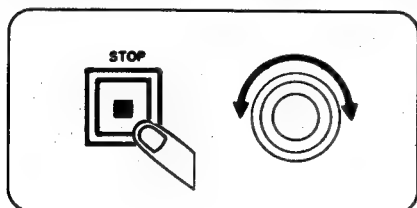
Superimpose display

The set-up display, such as that below, will appear on the screen for as long as the STOP button is held down.

Display



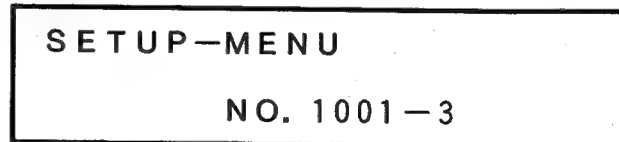
4 Turn the search dial while holding down the STOP button.

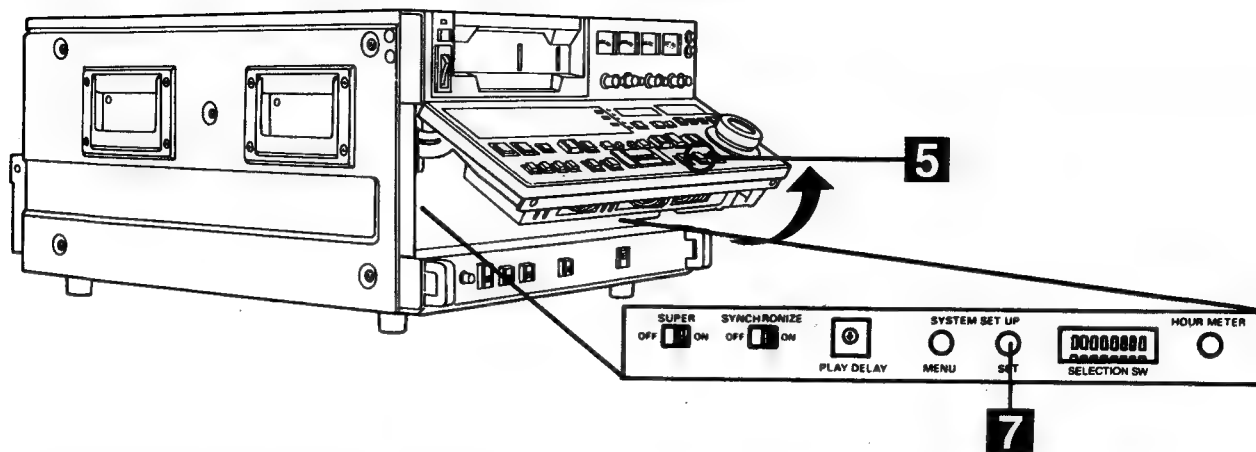


Superimpose display

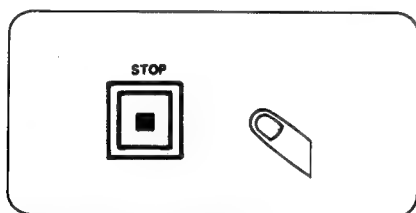
The flashing display changes. Set to the desired value.

Display





5 Release the STOP button.

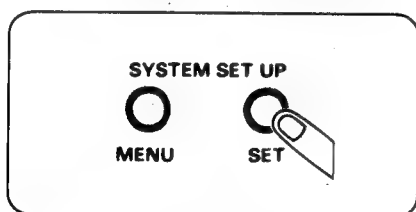


The set-up menu display returns to the screen.

6 Repeat steps 3 to 5.

Set all the set-up items to be changed to the desired values.

7 Press the SET button on the B1. SYSTEM CONTROL board.



Upon completion of the setting, press the SET button on the B1. SYSTEM CONTROL board.

The set-up changes are stored in the memory.

REFERENCE

- **To terminate operation in the mode without storing the settings in the memory:**
Press the MENU button on the B1. SYSTEM CONTROL board.
- **To return the set-up to the initial settings (set at the factory):**
Press the RESET button while the set-up menu is displayed. The following message will now appear.

SETUP-MENU INIT. SET OK?
(PUSH PLAY KEY)

The original settings are restored when the PLAY button is pressed.

Set-up Menus

Operation/function set-up items

[The shading denotes the initial setting.]

Item		Set-up value		Description of function
No.	Superimpose display	No.	Superimpose display	
1001	STILL TIME SELECT	00 01 02 03 04 05 06 07	0.5 SEC 5 SEC 10 SEC 30 SEC 1 MIN 3 MIN 5 MIN 10 MIN	When the unit is left in the STOP or STILL mode, this selects the duration of time after which the unit is automatically placed in the TAPE PROTECTION mode in order to protect the tape.
1002	TAPE PROTECTION SEL	00 01	T. RELEASE READY OFF	This selects the operation in the tape protection mode. 00: Tape tension release 01: Ready OFF mode (in conformity with No.1003)
1003	READY OFF MODE SELECT	00 01 02	DRUM ROTATE DRUM STOP UNLOADING	Selects the operation in the READY OFF mode. 00: Drum rotates. 01: Drum stops rotating. 02: Unloading
1004	SHTL DIAL MODE SELECT	00 01	DIRECT SHTL PRESET VAR	Selects the operation mode for the dial in any mode except shuttle. 00: Direct shuttle mode 01: Preset variable mode
1005	VAR/P-PLY SELECT (AU-66H only)	00 01	VAR P-PLY	Selects the operation of the VAR button. 00: Variable mode 01: Programme playback mode
1006	SHTL MAX SPEED SELECT	00 01	*32 *16	Selects the maximum search speed in the shuttle mode. 00: 32x normal tape speed 01: 16x normal tape speed
1007	VTR MODE AT TAPE END	00 01	STOP AUTO REW	Selects the operation after the tape-end has been detected. 00: Stop 01: Automatic rewinding to start
1010	TBC CONTROL SELECT	00 01	V-FLOAT NO V-FLOAT	Used to float the internal SYNC to enable H to be aligned with the reference signal and V to be aligned with the input signal. 00: Floating 01: Not floating
1011	STD/NON-STD SELECT	00 01	FRONT SWITCH NON-STD	Selects whether to forcibly establish the NSTD mode regardless of the position of the VIDEO IN/OUT switch on the front sub-panel. 00: As per position set by VIDEO IN/OUT switch. 01: NSTD mode is forcibly established.

Item		Set-up value		Description on function
No.	Superimpose display	No.	Superimpose display	
1012	VISC CONTROL SELECT	00 01	CONTROLLED NOT CONTROLLED	This uses VISC to align the subcarrier phase of the input video signal and the subcarrier phase of the encoder video output signal. (It is effective only during normal playback with CF SW 4F or 8F.) 00: VISC control 01: No VISC control
1013	FREEZE SELECT	00 01	OFF (AU-66H) ON (AU-65H)	Noise-free still pictures are played back. 00: The picture is not frozen. 01: The picture is frozen when the mode is transferred from playback to stop.
1014	WIDE INPUT SELECT	00 01	AUTO WIDE	Selects whether to record wide size video information contained in the YC input signals. 00: The wide size is automatically identified by the wide size information in the YC input signals, and it is recorded. 01: The wide size information is recorded regardless of the input.
1015	WIDE OUTPUT SELECT	00 01 02	AUTO NORMAL WIDE	Selects whether to place the wide size information on the YC output signals. 00: The wide size information is automatically placed on the YC output signals by the wide size information on the tape. 01: The wide size information is not placed on the YC output signals. 02: The wide size information is placed on the YC output signals.

Superimpose set-up items

[The shading denotes the initial setting.]

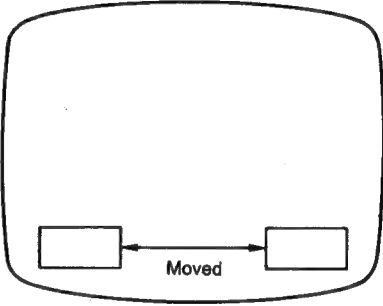
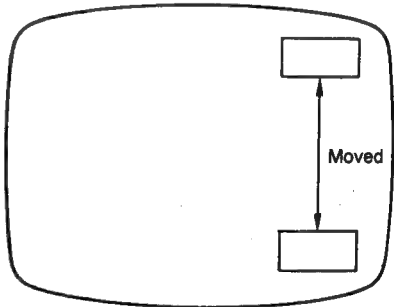
Item		Set-up value		Description of function
No.	Superimpose display	No.	Superimpose display	
2001	CHARACTER BACKGROUND	00 01	Selection is made while observing superimposed display.	Selects the type of characters for the VIDEO 3 superimpose display. 00: Black display 01: Edge display

LT CR ***:***:***:***:
LT CR ***:***:***:***:

Set-up Menus (cont.)

Superimpose set-up items (cont.)

[The shading denotes the initial setting.]

Item		Set-up value		Description of function
No.	Superimpose display	No.	Superimpose display	
2002	CHARACTER H-POSITION	00 01 02 03 04 05 06 07	Selection is made while observing superimposed display.	<p>Selects horizontal position for VIDEO 3 superimpose display; moves characters towards right as NO. is increased.</p> 
2003	CHARACTER V-POSITION	00 01 02 03 04 05 06 07	Selection is made while observing superimposed display.	<p>Selects vertical position for VIDEO 3 superimpose display; moves characters down as NO. is increased.</p> 
2004	STATUS SUPER	00 01	OFF ON	<p>Selects whether VTR operation mode is to be indicated as a superimposed display of VIDEO 3 output signal.</p>
2005	VIDEO OUT 3 SELECT	00 01 02	SUPER P IN P P IN P + SUPER	<p>When the SUPER switch on the B1. SYSTEM CONTROL board is ON, either the superimpose display at VIDEO OUT 3 or P IN P output is selected.</p> <p>00: Only superimpose is displayed. 01: Only P IN P is output. 02: Both are output.</p>
2006	P IN P MODE SELECT	00 01	SINGLE DOUBLE	<p>Selects the P IN P mode.</p> <p>00: The player VTR's picture is output at the top right of the screen as the sub picture. 01: The player VTR's picture is output both at the top right and top left of the screen.</p>

Remote set-up items

[The shading denotes the initial setting.]

Item		Set-up value		Description of function
No.	Superimpose display	No.	Superimpose display	
3001	REMOTE OPERATION SEL	00 01 02 03	SEPARATE LOCAL+REMOTE BOTH REMOTE ALL OPERATION	Selects connector which can be controlled when REMOTE switch is at REMOTE position. 00: Selected by CONTROL switch 01: Control panel and connector selected 02: REMOTE 1 and REMOTE 2 03: All operations possible
3002	EJECT/STOP FNCTN REM.	00 01	POSSIBLE NOT POSSIBLE	Selects operation of panel EJECT/STOP button in remote mode. 00: Enables operation. 01: Disables operation.
3003	50P STOP STATUS SEL	00 01	FLASHING NOT FLASHING	Selects whether or not to indicate by flashing the STOP status signal which is supplied to 50-pin remote connector in READY-OFF mode. 00: Flashing 01: Not flashing
3004	9P DEVICE TYPE SELECT	00 01 02	OTHER TYPEs 1 OTHER TYPEs 2 M2 ID	Selects ID code returned in response to 9P device type request command when control is exercised using 9-pin remote connector. 00: 1100 01: 2125 02: A115 (AU-65H)/A119 (AU-66H)
3005	VTR ADDRESS	00 01 02 03 04 05 06 07 08 09 10 11 12 13 14 15	A (8880) B (8882) C (8884) D (8886) E (8888) F (888A) G (888C) H (888E) I (88C0) J (88C2) K (88C4) L (88C6) M (88C8) N(88CA) O (88CC) P (88CE)	Sets identification number of each VTR when VTRs are connected to a multi-drop system through an RS-422 (9-pin) serial bus under the control of a special controller. This setting is effective starting from the time when the power is next switched ON.

Set-up menus (cont.)

Editing set-up items

[The shading denotes the initial setting.]

Item		Set-up value		Description of function
No.	Superimpose display	No.	Superimpose display	
4001	CF ADJUSTMENT SELECT	00 01	TO PLAYER TO RECORDER	Selects the VTR which is to adjust the entered points for VTR-to-VTR editing. (0 to +3 frame) 00: The points on the player tape are adjusted. 01: The points on the recorder tape are adjusted.
4002	EDIT FIELD SELECT	00 01	ODD EVEN	Selects the start field for editing. 00: Start with odd number field 01: Start with even number field
4003	AUTO PREROLL ENTRY	00 01	NOT ENTERED ENTERED	Selects whether to enter the IN point by pressing the pre-roll button when the IN point has not been entered. 00: Entered 01: Not entered
4007	CONFIDENCE EDIT (AU-66H only)	00 01	OFF ON	Used to select simultaneous playback during editing. 00: Simultaneous playback does not take place. 01: Simultaneous playback takes place.

Colour framing set-up items

[The shading denotes the initial setting.]

Item		Set-up value		Description of function
No.	Superimpose display	No.	Superimpose display	
5004	CF SELECT AT Pb OUT	00 02	AUTO ON	Selects whether to add the colour framing ID to the COMPONENT Pb OUT connector signal. 00: Forcibly added when the composite video input signal is recorded in the normal recording or assemble editing mode. Added when CF lamp lights in the playback mode. 02: Added

Time code set-up items

[The shading denotes the initial setting.]

Item		Set-up value		Description of function
No.	Superimpose display	No.	Superimpose display	
6001	VITC POSITION SEL-1	00	8 LINE	Selects VITC signal insertion line. *Same line as No.6002 cannot be selected.
		01	9 LINE	
		02	10 LINE	
		03	11 LINE	
		04	13 LINE	
		05	14 LINE	
		06	15 LINE	
		07	16 LINE	
		08	17 LINE	
		09	18 LINE	
		10	19 LINE	
		11	20 LINE	
		12	21 LINE	
6002	VITC POSITION SEL-2	00	8 LINE	Selects VITC signal insertion line. *Same line as No.6001 cannot be selected.
		01	9 LINE	
		02	10 LINE	
		03	11 LINE	
		04	13 LINE	
		05	14 LINE	
		06	15 LINE	
		07	16 LINE	
		08	17 LINE	
		09	18 LINE	
		10	19 LINE	
		11	20 LINE	
		12	21 LINE	
6003	TCG REGEN MODE	00	TC+UB	Selects regeneration signal when TCG is in REGEN mode. 00: Regenerated for time code and user bits. 01: Regenerated for time code only. 02: Regenerated for user bits only.
		01	TC	
		02	UB	
6004	REGEN AUTO MODE	00	ASSEM+INSERT	Selects whether time code is to be regenerated in VTR-to-VTR editing. 00: Regenerated for assemble and insert editing. 01: Regenerated for assemble editing. 02: Regenerated for insert editing. 03: Conforms to time code board setting.
		01	ASSEM	
		02	INSERT	
		03	TC SWITCH	
6005	TCG REFERENCE	00	AUTO	Selects reference signal for time code generator. 00: Automatically selected under same condition as servo reference 01: Reference video signal serves as reference.
		01	REF	

Set-up menus (cont.)

Time code set-up items

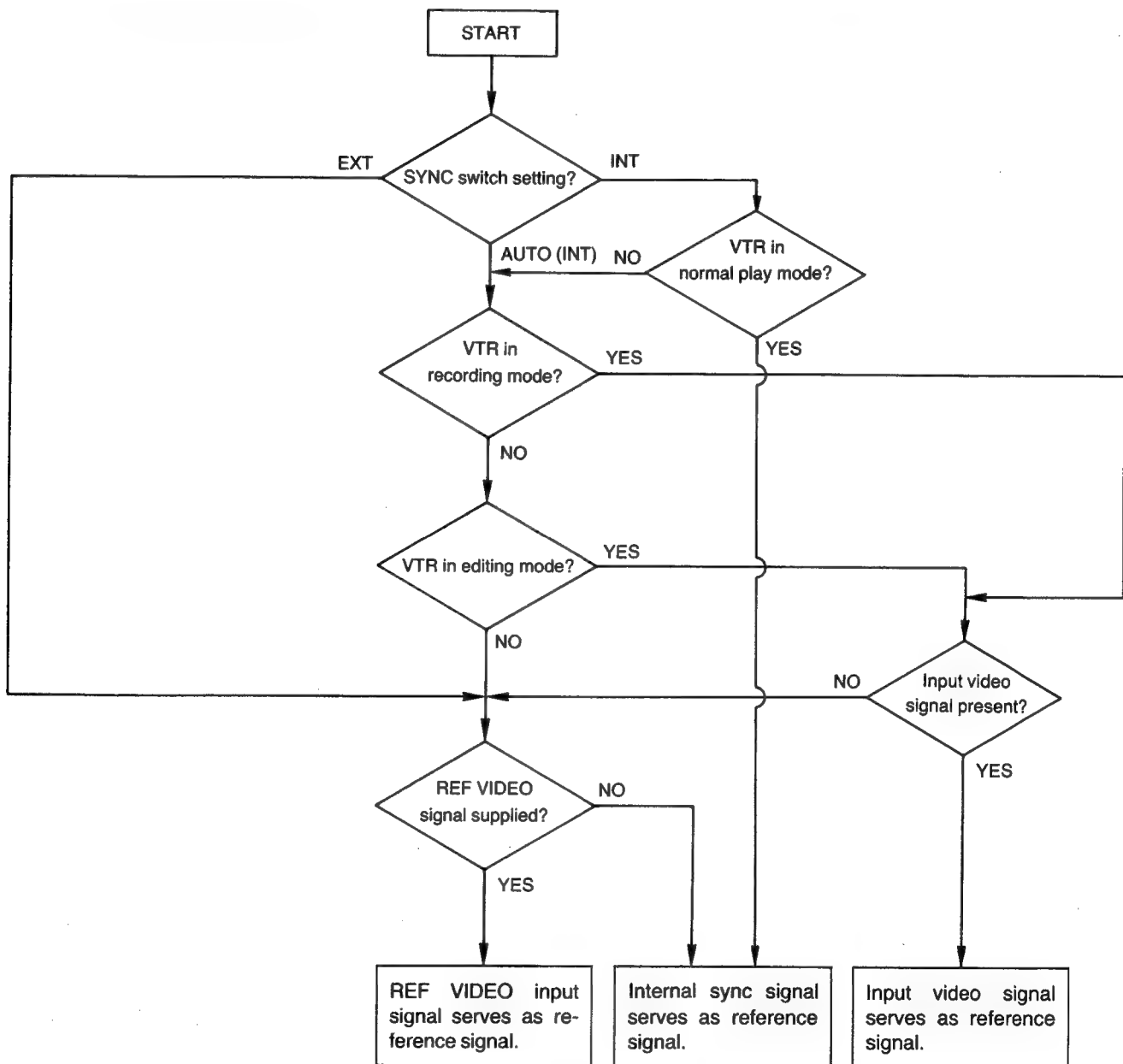
[The shading denotes the initial setting.]

Item		Set-up value		Description of function
No.	Superimpose display	No.	Superimpose display	
6006	TC OUT SIGNAL REGEN	00 01	OFF TAPE REGEN	Selects waveform which is output from TIME CODE OUT connector in internal regeneration mode. 00: Outputs playback signals in their original form. 01: Regenerates and outputs playback signals only in servo lock mode.
6007	UB BINARY GROUP FLAG	00 01 02 03	NOT SPECIFIED ISO CHARACTER UNASSIGNED 1 UNASSIGNED 2	Selects mode for using user bits generated by TCG. 00: No character set assigned. 01: 8-bit character set conforming to ISO646, ISO2022. 02/03: Not defined
6008	UB REAL TIME	00 01 02 03	OFF LTC UB VITC UB BOTH	Sets the real time mode for the user bits. 00: No setting 01: Setting for LTC UB only 02: Setting for VITC UB only 03: Setting for both LTC UB and VITC UB
6009	WAKEUP SELECTION	00 01	TC CTL	Selects the time data display when power is ON. 00: TC display 01: CTL display
6010	TCG CF FLAG	00 01	OFF ON	Selects whether CF flag of time code generator is to be set ON. 00: CF flag not set 01: CF flag is set, and time code generator is locked to CF of video signal during recording.

Servo Reference

As the servo reference signal, this unit automatically selects the input video signal which corresponds to the INPUT switch setting, the REF VIDEO signal which is supplied from the REF VIDEO input connector or the internal sync signal (INT).

The relationship between the unit's modes and SYNC switch positions is shown below.



Servo Reference (cont.)

The TBC must supply the reference signal from an external source under normal circumstances.

•Table of servo reference settings

As shown in the table below, the servo reference signal selected depends on the SYNC switch position, the operation mode of the VTR and whether an input signal is available.

SYNC SW		AUTO				EXT				INT			
VTR MODE		REC		PLAY		REC		PLAY		REC		PLAY	
INPUT		EDIT	NOR- MAL	EDIT	NOR- MAL	EDIT	NOR- MAL	EDIT	NOR- MAL	EDIT	NOR- MAL	EDIT	NOR- MAL
VIDEO	REF												
YES	YES	VIDEO		VIDEO	REF	REF				VIDEO		VIDEO	INT
YES	NO	VIDEO		VIDEO	INT	INT				VIDEO		VIDEO	INT
NO	YES	REF		REF	REF	REF				REF		REF	INT
NO	NO	INT		INT	INT	INT				INT		INT	INT

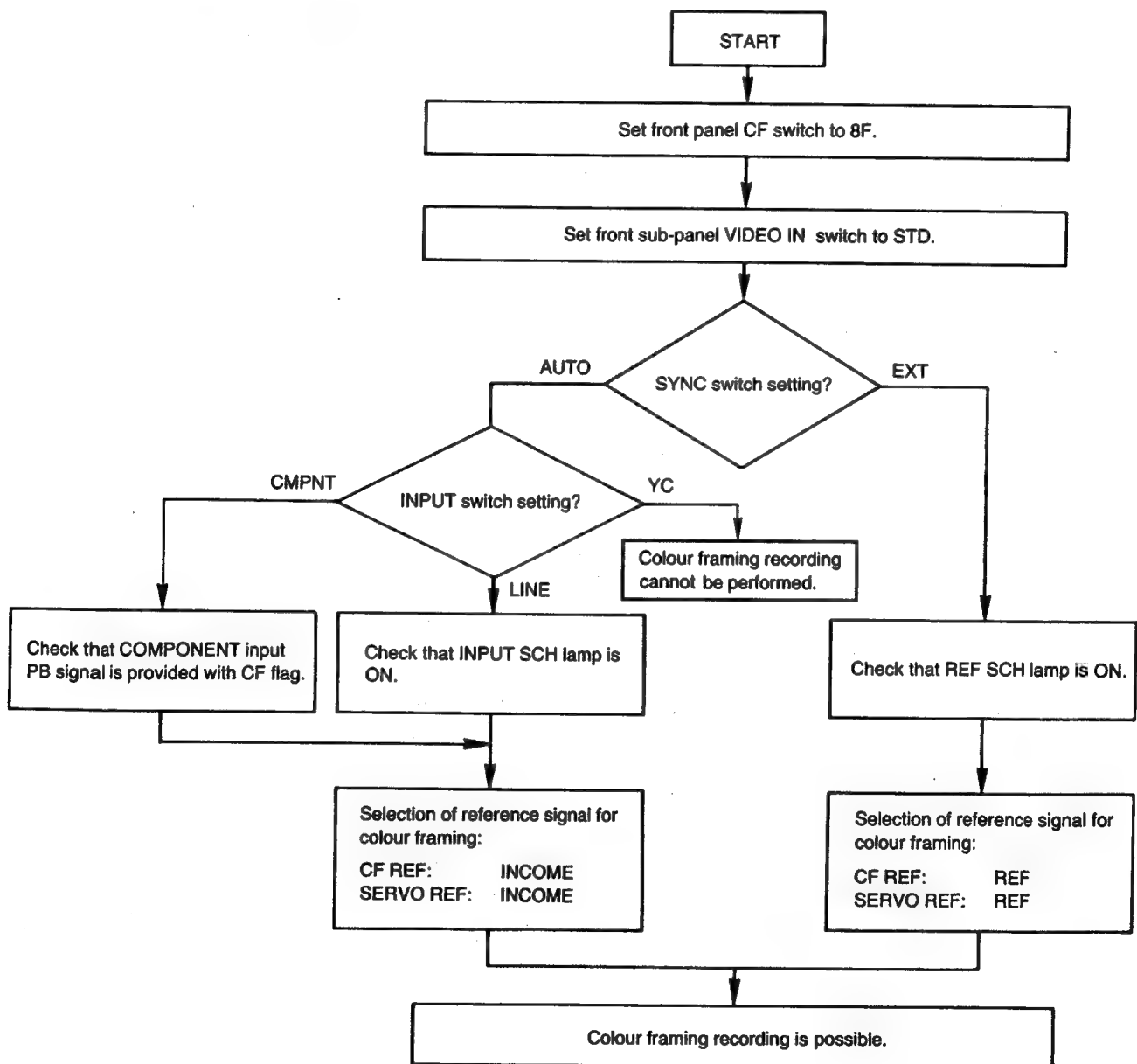
Colour Framing

In an editing system, colour framing serves to synchronize the playback signals perfectly so as to safeguard against picture jumping and phase errors.

1 Colour framing by the LINE and COMPONENT inputs (for recording)

NOTES:

Connect a standard signal to the REF VIDEO and COMPONENT input connectors.
Check that the COMPONENT input PB signal is provided with the CF flag.

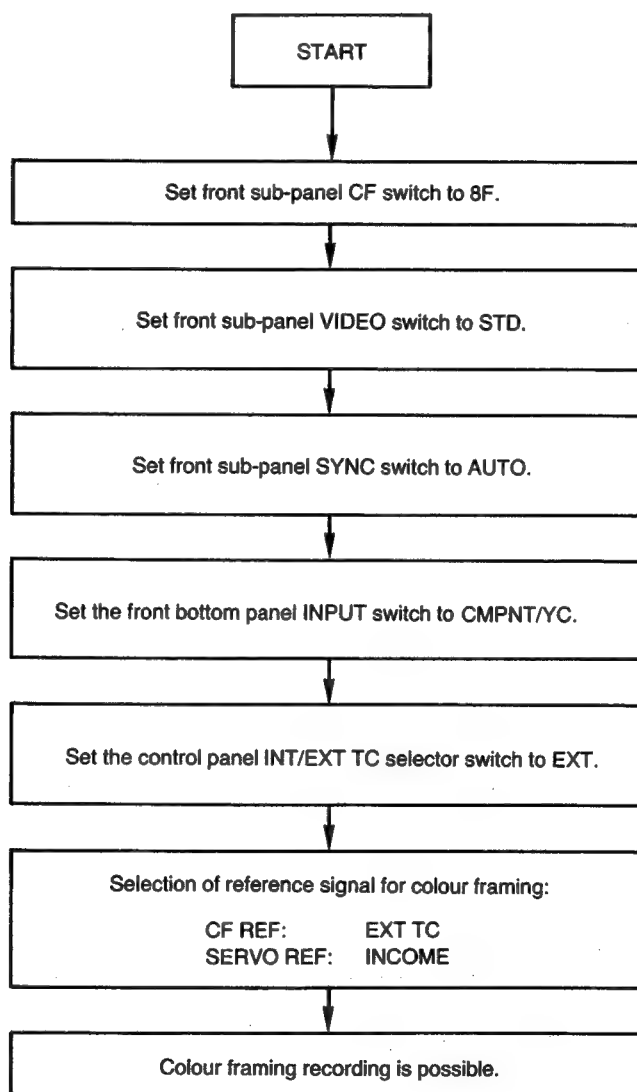


Colour Framing (cont.)

2 Colour framing using EXT TC (for recording)

NOTES:

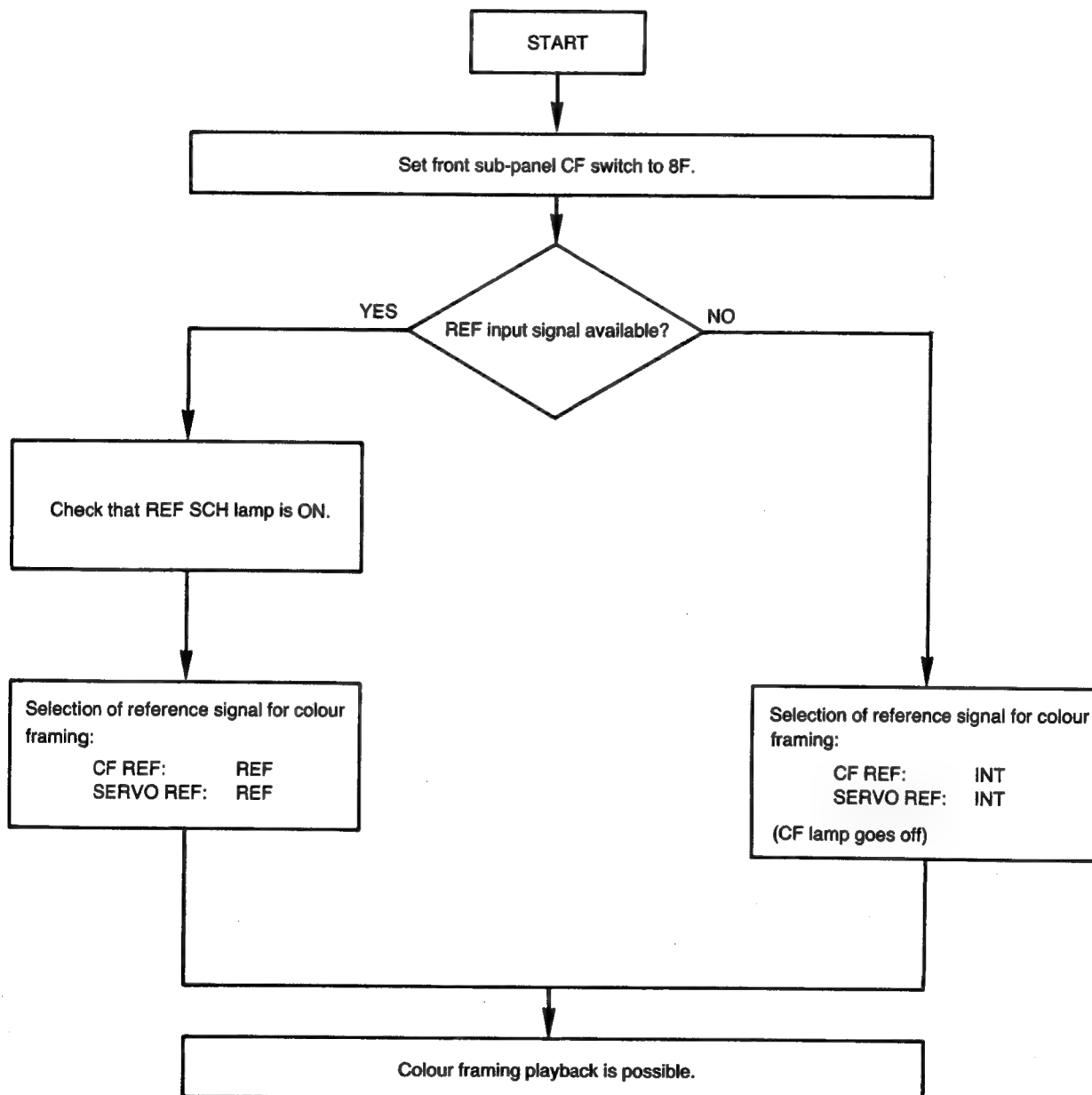
Connect a component signal without the CF flag.
Connect a time code generator to the EXT TC input.



3 Colour framing during playback

NOTE:

Play back a tape which was recorded in the colour framing mode.



REC INHIBIT Table

1 REC INHIBIT Table

Safety tab (slide switch on cassette) position	REC INH switch (switch on back of front panel) position	REC PLAY operation	EDIT operation		Front panel REC INH lamp				Front mode lamp				
			ASSM	INS	REC	V	A	TC	ASSM	INS	V	A	TC
OPEN *1	—	No	No	No	○	○	○	○	■	■	■	■	■
—	ON	No	No	No	○	○	○	○	■	■	■	■	■
CLOSED	OFF	Yes	Yes	Yes	●	●	●	●	□	□	□	□	□
		Yes	Yes	Yes	●	●	●	○	□	□	□	□	■
		Yes	Yes	Yes	●	●	○	●	□	□	□	■	□
		Yes	Yes	Yes	●	●	○	○	□	□	□	■	■
		Yes	No	Yes	●	○	●	●	■	□	■	□	□
		Yes	No	Yes	●	○	●	○	■	□	■	□	■
		Yes	No	Yes	●	○	○	●	■	□	■	■	□
		Yes	No	Yes	●	○	○	○	■	□	■	■	■

○: When REC INHIBIT lamp is ON
□: Can be selected

●: When REC INHIBIT lamp is OFF
■: Cannot be selected

*1: Valid only when cassette is in
"down" position.

Connector Signals

Main connectors

Connector	Connector No.
YC IN	VJS2579
YC OUT	VJS2579
AUDIO IN	VJS1920
AUDIO OUT	VJS1894
REMOTE 2	VJS1887
ENCODER REMOTE	VJS1888

YC (S1 VIDEO) Input/Output connector

Pin No.	Connector Signal
1	Y GND
2	C GND
3	Y signal input/output
4	C signal input/output

AUDIO Input/Output connector (XLR-3P)

Pin No.	Connector Signal
1	GND
2	HOT
3	COLD

REMOTE 2 connector (9P)

Pin No.	Connector Signal
1	GND
2	RECEIVE A
3	TRANSMIT B
4	TRANSMIT COMMON
5	SPARE
6	RECEIVE COMMON
7	RECEIVE B
8	TRANSMIT A
9	GND

TRANSMIT and RECEIVE pins are reversed when controlled from another VTR.

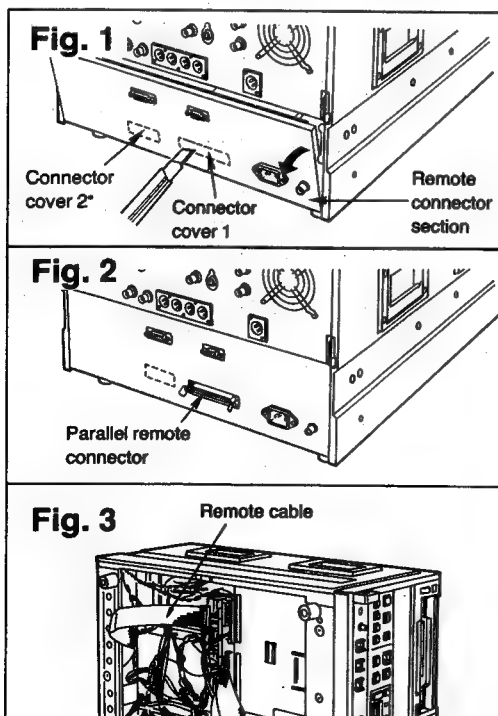
ENCODER REMOTE CONNECTOR (15P)

Pin No.	Connector Signal
1	—
2	BLACK LEVEL
3	CHROMA LEVEL
4	GND
5	+12 V
6	SYSTEM H θ
7	SYS. SC COARSE (2)
8	-12 V
9	CHROMA PHASE
10	VIDEO LEVEL
11	RET GND
12	—
13	—
14	SYS. SC FINE
15	SYS. SC COARSE (1)

Connector Signals (cont.)

Optional REMOTE 1 connector (50P) AU-MK25

Pin No.	Connector Signal	Pin No.	Connector Signal
1	REC COMMAND	26	+12 V
2	PLAY COMMAND	27	REC STATUS
3	FF COMMAND	28	PLAY STATUS
4	REW COMMAND	29	FF STATUS
5	STOP COMMAND	30	REW STATUS
6	PAUSE COMMAND	31	STOP STATUS
7	CUT IN COMMAND	32	PAUSE STATUS
8	CUT OUT COMMAND	33	CUT IN STATUS
9	AUDIO CH1 COMMAND	34	SERVO LOCK STATUS
10	AUDIO CH2 COMMAND	35	AUDIO CH1 STATUS
11	VIDEO COMMAND	36	AUDIO CH2 STATUS
12	TIME CODE DUB COMMAND	37	VIDEO STATUS
13	SHTL COMMAND	38	TIME CODE DUB STATUS
14	JOG COMMAND	39	SHTL STATUS
15	PREROLL COMMAND	40	JOG STATUS
16	EDIT COMMAND	41	READY ON/OFF STATUS
17	SEARCH 0	42	REMOTE
18	SEARCH 1	43	FWD
19	SEARCH 2	44	CTL SIGNAL
20	READY ON/OFF COMMAND	45	CTL GND
21	_____	46	_____
22	FWD/REV COMMAND	47	GND
23	EJECT COMMAND	48	JOG CONTROL SIGNAL
24	UNTHREAD STATUS	49	JOG CONTROL GND
25	LOCAL ENABLE COMMAND	50	GND



Attaching the REMOTE 1 connector

1. Detach the remote connector section and remove the connector cover 1. (See Fig. 1.)
2. Attach the optional AU-MK25 REMOTE 1 connector. (See Fig. 2)
3. Use the accessory remote cable to connect the REMOTE 1 connector as shown in the figure. (See Fig. 3)
4. Attach the remote connector section.

CAUTION: TO REDUCE THE RISK OF FIRE OR SHOCK HAZARD, REFER MOUNTING OF THE OPTIONAL CONNECTOR TO AUTHORIZED SERVICE PERSONNEL.

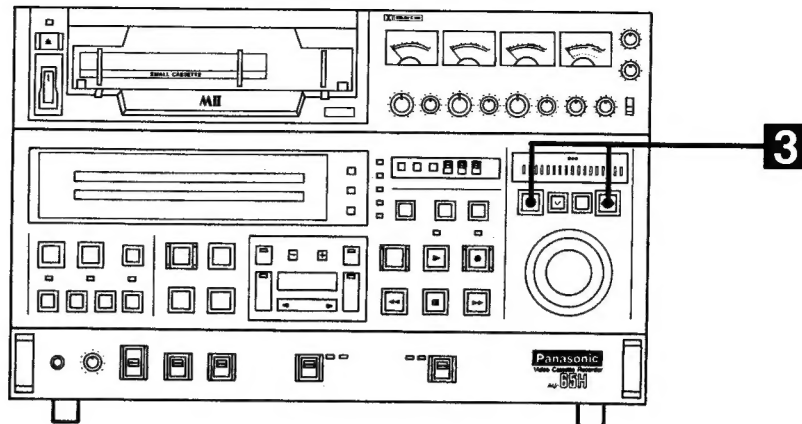
*The AU-MK26 connector is used to obtain a parallel digital output (CCIR601). Consult with your dealer for further details.

Error Messages

Display	Description	VTR operation
SERVO NOT LOCKED	Flashes during the PLAY, REC PLAY or EDIT PLAY mode when the servo system has been disengaged for 3 or more seconds.	Continues operation
LOW-RF	Flashes when a dropout has been detected for 2 or more seconds while the PLAY lamp is ON and the tape is traveling at 1× speed.	Continues operation
DRUM MOTOR	Alarm sounds and message flashes when drum lock status continues for 5 or more seconds.	Stops
REEL MOTOR	Alarm sounds and message flashes when, in capstan mode, take-up reel does not rotate while the tape is advanced by about 10 cm.	Stops
FRONT LOAD MOTOR	VTR mode is transferred to eject if cassette does not assume "down" position even when 5 seconds have elapsed after cassette was inserted.	Ejects cassette
	Alarm sounds and message flashes when cassette does not assume "up" position when VTR is transferred to eject mode and 5 seconds have elapsed after cassette was inserted.	Stops
LOADING MOTOR	VTR mode is transferred to unloading when loading operation is not completed within 10 seconds.	Unloads tape
	Alarm sounds and message flashes when unloading operation is not completed within 10 seconds.	Stops
PHOTO TRANSISTOR	Alarm sounds and message flashes when sensor LED has failed.	Stops
DEW	Alarm sounds and message flashes when condensation has formed.	* Ejects tape
TAPE SLACK	Alarm sounds and message flashes when tape is slack.	Stops
REEL DRIVE ERROR	Alarm sounds and message flashes when actual tape advance direction differs from system control command by 5 or more seconds.	Stops
DC ○○ V TROUBLE	Alarm sounds and message flashes when there is something wrong with the power supply or related parts.	Stops
FAN STOP	Alarm sounds and message flashes when fan inside power supply box stops operating.	Continues operation
FG TROUBLE	Alarm sounds and message flashes when there is something wrong with reel travel during high-speed search.	Stops
NEGATIVE	Flashes when front panel DIP SW2-2 is ON if IN point is equal to or greater than OUT point during edit point entry.	—

*When condensation has formed, the drum continues to rotate so that the condensation will dry out. Once it has been removed, the AUTO OFF lamp and error display go off, and the VTR can be used again.

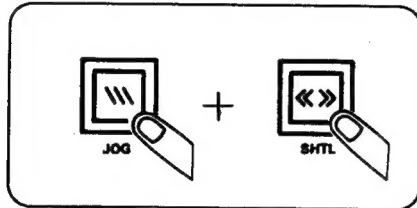
Head Cleaning



1 Set the VTR to the stop mode.

2 Remove the cassette tape.

3 Press the JOG and SHTL buttons together.



The loading post moves in order to facilitate head cleaning.

4 Proceed with head cleaning.

Handle the parts with the utmost care. For further details, contact your dealer.

5 Upon completion of the work, perform one of the following operations.

- 1)** Set the POWER switch to OFF and then back to ON.
- 2)** Press the EJECT button.
- 3)** Insert a cassette tape.

6 This completes the head cleaning process.

Handling Precautions

Handling precautions

- Vibration:** Avoid using the unit in a location susceptible to vibration.
- Magnetism:** Do not bring the unit near a magnet.
- Temperature:** Avoid using the unit in extremely hot or cold areas or in direct sunlight. Failure to do so may cause its performance to deteriorate.
•Operating temperature: +5°C to +40°C
(Under no circumstances must the fan area at the back of the ventilation hole section be blocked or covered since the fan serves to safeguard against inside temperature rises.)
- Humidity:** This unit is particularly vulnerable to humidity and moisture. Avoid locations where the humidity is high or where the unit may be exposed to rain.
- Transportation:** Remove the cassette tape from the unit when transporting it from place to place.
When disconnecting the power cord from the power outlet, remember to take hold of the power plug (and not the cord itself).

Installation

Take the operating environment and installation space into account. Adherence to the points below will ensure that full justice will be done to the unit's excellent quality, and operating and servicing ease.

- Use the unit on a flat and even surface.
- Do not place objects on top of the unit.
- If the unit is to be used on a stand, make sure that the stand is strong and sturdy.
- To facilitate ventilation and servicing, leave clearances of at least 40 cm behind the unit from a wall or other surface.
- If the unit is to be used on a desk or other such surface, leave a clearance of at least 20 cm above it in order to facilitate the servicing of the circuit board. There is no need to leave any clearances when mounting the unit in a rack since the unit is pulled out when its circuit boards are to be maintained.

Maintenance

Before proceeding with maintenance, set the power switch to OFF and take hold of the power plug to disconnect it from the power outlet.

Use a soft cloth to clean the cabinet. With stubborn stains or dirt, use a mild detergent solution, allow a cloth to soak in it, and then wring it out and clean. After having removed the stains or dirt, use a dry cloth to wipe away any moisture.

Do not use paint thinners or benzene.

Storage

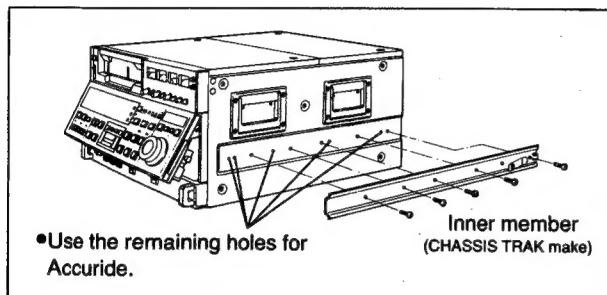
- Avoid storing the unit in a location characterized by extremely high or low temperatures.
- Under no circumstances should the unit be left outdoors.
- If there are no plans to use the unit for a prolonged period, set the power switch to OFF and, remembering to take hold of the power plug, disconnect it from the power outlet. This is done to safeguard against accidents and break downs.
- Before storing, always remember to remove the cassette tape if one is still inside the unit.

Rack Mounting

Using the optional AU-M60 rack-mounting adaptors, the unit can be housed in a standard IEC 48.2 cm rack. For the mounting rails, either the rails and bracket unit (part no. CC3001-99-0191) made by Chassis Trak or the rails (part no. C-2038-1215) and brackets (part no. BK-2308) made by Accuride are recommended. Consult with your dealer for further details.

1 Remove the 6 screws each at the left and right sides of the main unit.

2 Attach the inner members



Attach the inner members of the slide rails using the screws which have just been removed.

There is a limit to the length of the screws used. If any of the mounting screws have been lost or misplaced, use screws (M4x10) with a length of not more than 10 mm.

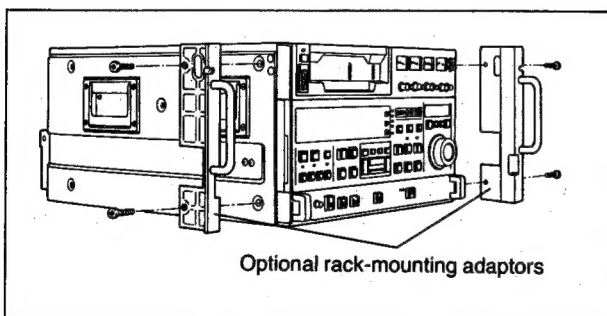
Screw down the inner members in 4 or more places.

3 Remove the 4 rubber feet on the unit's bottom panel.

4 Attach the outer member brackets to the rack.

Check that the height at the left and right is the same.

5 Attach the optional AU-M60 rack-mounting adaptors.



6 Check that the unit slides properly in and out.

Mount the unit in the rack, and check that it slides smoothly on the rails.